Yorkshire Water Drought Plan supply side options: North Area Reservoir Group
Type of option: Reservoir group - compensation reduction
Location / Area affected or whole supply zone: Grid SWZ North Area
Summary description of actions: Compensation flows reduced to half or one third of normal flows to preserve reservoir stocks and extend the period that compensation flows can be maintained. Reductions will be considered on a selective basis as some releases are more critical than others
Preceding actions: Publicity campaign and temporary use bans in force (April to September)

Option name		North Area Reservoir 1	North Area Reservoir 2	North Area Reservoir 3	North Area Reservoir 4	North Area Reservoir 5
Trigger(s)		Triggers – Risk of shortage of supply established: 1.Regional Stocks <Normal Control Line and approaching Drought Control Line (within 1-2 weeks) 2.Regional Stocks have crossed Drought Control Line and remained below for more than 4 weeks See further information below on downstream river users.	Triggers – Risk of shortage of supply established: 1.Regional Stocks <Normal Control Line and approaching Drought Control Line (within 1-2 weeks) 2.Regional Stocks have crossed Drought Control Line and remained below for more than 4 weeks	Triggers – Risk of shortage of supply established: 1.Regional Stocks <Normal Control Line and approaching Drought Control Line (within 1-2 weeks) or Scargill Reservoir is below 25% (as per the temporary Local Enforcement Position (LEP)), 2.Regional Stocks have crossed Drought Control Line and remained below for more than 4 weeks	Triggers – Risk of shortage of supply established: 1.Regional Stocks <Normal Control Line and approaching Drought Control Line (within 1-2 weeks) 2.Regional Stocks have crossed Drought Control Line and remained below for more than 4 weeks See further information below on downstream river users.	Triggers – Risk of shortage of supply established: 1.Regional Stocks <Normal Control Line and approaching Drought Control Line (within 1-2 weeks) 2.Regional Stocks have crossed Drought Control Line and remained below for more than 4 weeks See further information below on downstream river users.
Most likely authorisation in a drought (permit or order)		Permit	Permit	Permit	Permit	Permit
Current Legal Requirement (Compensation release, minimum maintained flow or authorised abstraction limit)		Compensation release 12.1Ml/d	Compensation release 0.455 Ml/d (or 100,000 gallons per day as stated in the authorising Act) (rounded to 2 d.p in the EAR - 0.46 Ml/d)	Group compensation of 0.75 Ml/d	Compensation release 18.185 Ml/d (authorising Act defines release as a quantity of water not being less than 2,778 gallons per minute) (rounded to 2 d.p in the EAR - 18.19 Ml/d)	16 November – 15 April compensation release 16.90Ml.d: 16 April - 15 May and 16 October – 15 November compensation release 8.20 Ml/d 16 May-15 October 3.90Ml/d
Deployable Output of action - Variable depending on conditions and duration of drought permit	**Action 1 Description**	Reduce compensation release by 50% to 6.05 Ml/d providing 6.05 Ml/d benefit .	Reduce compensation release by 50% to 0.23 Ml/d providing 0.23 Ml/d benefit	Reduce group compensation release by 50% to 0.38 Ml/d	Reduce compensation release by 50% to 9.09 Ml/d providing 9.11 Ml/d benefit	Depending on the time of year reduce compensation by 50% to: 8.45 Ml/d between 16 November – 15 April 4.10 Ml/d providing a benefit of 8.45 Ml/d; or 4.10 Ml/d between 16 April - 15 May and 16 October - 15 November providing a benefit of 4.10 Ml/d; or 1.95Ml/d between 16 May - 15 October providing a benefit of 1.95 Ml/d
	Action 2 Description	Reduce compensation release by 67% to 4.03 Ml/d providing 8.07 Ml/d benefit.	Reduce compensation release by 67% to 0.15 Ml/d providing 0.305 Ml/d benefit	Reduce group compensation release further by 67% to 0.25 Ml/d	Reduce compensation release by 67% to 6.06 Ml/d providing 12.13 Ml/d benefit	Depending on the time of year reduce compensation by 67% to: 5.63Ml/d providing a benefit of 11.30 Ml/d 2.73Ml/d providing a benefit of 5.49 Ml/d 1.30Ml/d providing a benefit of 2.60Ml/d
Implementation timetable **Preparation time, time of year effective, duration**		Preparation time: 4 weeks prior to advertising, implementation period 5-6 weeks (advertisement, representation, enquiry, granting) Time of year effective: implemented when reservoir stocks approach drought control line so could be effective any time of year. Compensation release reductions may be phased to minimise effect on downstream watercourses. Duration: Minimum period of restriction typically 12 weeks				
Permissions required and constraints **Including details of liaison with bodies responsible for giving any permits or approvals**		Permission from Defra or the Environment Agency required following application of a drought order or permit. A public enquiry may be required. Liaise with Environment Agency.				
Risks associated with option		Reduction in compensation releases / maintained flows have potential environmental impacts. These will be assessed through the Environmental Assessment Report submitted with the application.				
Risk to the Environment **(Major/Moderate/Minor or uncertain)**		Hydrological and water quality assessment identified a zone of impact of the drought option of: Pott Beck and River Burn. The assessment concluded that there would be Major impacts on hydrology (river flow and level) and a Major risk to water quality associated with this option.	Hydrological and water quality assessment identified a zone of impact of the drought option of: Holborn Beck and River Laver. The assessment concluded that there would be Major impacts on hydrology (river flow and level) and a Minor risk to water quality associated with this option.	Hydrological and water quality assessment identified a zone of impact of the drought option of: Oak Beck. The assessment concluded that there would be Major impacts on hydrology (river flow and level) and a Moderate risk to water quality associated with this option.	Hydrological and water quality assessment identified a zone of impact of the drought option of: River Washburn. The assessment concluded that there would be Major impacts on hydrology (river flow and level) and a Major risk to water quality associated with this option.	Hydrological and water quality assessment identified a zone of impact of the drought option of: River Washburn The assessment concluded that there would be Major impacts on hydrology (river flow and level) and a Minor risk to water quality associated with this option.
Summary of likely environmental impacts **Include details for features of moderate and major sensitivity and minor sensitivity features from designated sites**		Environmental assessment has identified potential environmental sensitivities (prior to mitigation) within the zone of influence to: WFD compliance Macroinvertebrates (Major to Moderate) Fish (Major to Moderate) NERC and notable fish - numerous species (Major to minor) White-clawed crayfish (Moderate) *Riolus subviolaceus* (Moderate) *Atherix ibis* (Moderate) *Ameletus inopinatus* (Moderate) Water vole (Moderate)	Environmental assessment has identified potential environmental sensitivities (prior to mitigation) within the zone of influence to: WFD compliance Macroinvertebrates (Minor) Fish (Minor) NERC and notable fish - numerous species (Minor to Moderate) White-clawed Crayfish (Moderate) Water Vole (Moderate)	Environmental assessment has identified potential environmental sensitivities (prior to mitigation) within the zone of influence to: WFD compliance Macroinvertebrates (Moderate) Fish (Major) NERC and notable fish – numerous species (Minor to Major) White-clawed crayfish (Moderate) Water Vole (Moderate) *Rhithrogena germanica* (Moderate) *Stictonectes lepidus* (Moderate)	Environmental assessment has identified potential environmental sensitivities (prior to mitigation) within the zone of influence to: WFD compliance Macroinvertebrates (Moderate) Fish (Major) NERC and notable fish – numerous (Moderate to Major) White-clawed crayfish (Major) Water vole (Major) *Atherix ibis* (Moderate) *Paraleptophlebia cincta* (Moderate) *Psychomyia fragilis* (Moderate) *Rhyacophila fasciata/ septentrionis* (Moderate) *Wormaldia subnigra* (Moderate)	Environmental assessment has identified potential environmental sensitivities (prior to mitigation) within the zone of influence to: WFD compliance Macroinvertebrates (Moderate) Fish (Major) NERC and notable fish – numerous (Moderate to Major) Water vole (Moderate) Priority habitat 412935- lowland fens (Minor)
Baseline information used		Environmental assessment used YWS and EA data and information on: reservoir management, measured reservoir outflow, water resource modelling of outflow in critical drought years, gauged river flows and levels; routine WFD water quality monitoring, water quality and flow pressures (abstraction licence and discharge consent registers), YWS STW information; macroinvertebrate sampling data and LIFE, WHPTNATXA and WHPTASPT EQI scores, fish abundances from monitoring surveys, Fisheries Classification Scheme (2) data and publicly available data on designated sites, distributions of NERC Act Section 41 priority species, distribution of Invasive and Non-Native Species and recreational resources, in addition to local EA / YWS knowledge.				
Summary of additional baseline monitoring requirements		Details of additional baseline monitoring requirements are incorporated within the Environmental Monitoring Plan, listing the features to be monitored and methods used; location, timing and frequency of surveys; and who will undertake the monitoring.				
Mitigation measures		Mitigation measures and accompanying monitoring have been identified for serious impacts of the drought option (features of moderate and major sensitivities, and minor sensitivities to designated sites - as listed above) through discussion with the EA. Details are incorporated within the Environmental Monitoring Plan				
Impact on other activities **e.g. fisheries, industry etc**		Screening identified no potential impacts.	Screening identified no potential impacts.	Screening identified no potential impacts.	Screening identified no potential impacts.	Screening identified no potential impacts.

WFD Compliance	Reach 1: Impacts on macroinvertebrates and fish would be moderate. The impacts would not be associated with WFD deterioration based on the criteria outlined in the Environmental Assessment Report. Reach 2: Impacts on macroinvertebrates and fish would be Major. The impacts would not associate with WFD deterioration based on the criteria outlined in the Environmental Assessment Report.	Reaches 1 and 2: Impacts on macroinvertebrates and fish would be minor. The impacts would not be associated with WFD deterioration based on the criteria outlined in in the Environmental Assessment Report. Reach 2: impacts on macroinvertebrates and fish would be negligible. The impacts would not be associated with WFD deterioration based on the criteria outlined in in the Environmental Assessment Report.	Reach 1: Impacts on macroinvertebrates would be moderate and fish would be major. The impacts would not be associated with WFD deterioration based on the criteria outlined in the Environmental Assessment Report.	Reach 1: Impacts on macroinvertebrates would be moderate and fish would be major. The impacts would not be associated with WFD deterioration based on the criteria outlined in the Environmental Assessment Report.	Reach 1: Impacts on macroinvertebrates would be moderate and fish would be major. The impacts would not be associated with WFD deterioration based on the criteria outlined in the Environmental Assessment Report.

Yorkshire Water Drought Plan supply side options: South Area Reservoir Group

Type of option: Reservoir group - compensation reduction

Location / Area affected or whole supply zone: Grid SWZ South Area

Summary description of actions: Compensation flows reduced to half or one third of normal flows to preserve reservoir stocks and extend the period that compensation flows can be maintained. Reductions will be considered on a selective basis as some releases are more critical than others

Preceding actions: Publicity campaign and temporary use bans in force (April to September)

Option name		South Area Reservoir 1	South Area Reservoir 2	South Area Reservoir 3a	South Area Reservoir 3b	South Area Reservoir 4	South Area Reservoir 5	South Area Reservoir 6	South Area Reservoir 7
Trigger(s)		Triggers – Risk of shortage of supply established 1.Regional Stocks <Normal Control Line and approaching Drought Control Line (within 1-2 weeks) 2.Regional Stocks have crossed Drought Control Line and remained below for more than 4 weeks	Triggers – Risk of shortage of supply established: 1.Regional Stocks <Normal Control Line and approaching Drought Control Line (within 1-2 weeks) 2.Regional Stocks have crossed Drought Control Line and remained below for more than 4 weeks	Triggers – Risk of shortage of supply established 1.Regional Stocks <Normal Control Line and approaching Drought Control Line (within 1-2 weeks) 2.Regional Stocks have crossed Drought Control Line and remained below for more than 4 weeks	Triggers – Risk of shortage of supply established 1.Regional Stocks <Normal Control Line and approaching Drought Control Line (within 1-2 weeks) 2.Regional Stocks have crossed Drought Control Line and remained below for more than 4 weeks	Triggers – Risk of shortage of supply established 1.Regional Stocks <Normal Control Line and approaching Drought Control Line (within 1-2 weeks) 2.Regional Stocks have crossed Drought Control Line and remained below for more than 4 weeks	Triggers – Risk of shortage of supply established 1.Regional Stocks <Normal Control Line and approaching Drought Control Line (within 1-2 weeks) 2.Regional Stocks have crossed Drought Control Line and remained below for more than 4 weeks	Triggers – Risk of shortage of supply established: 1.Regional Stocks <Normal Control Line and approaching Drought Control Line (within 1-2 weeks) 2.Regional Stocks have crossed Drought Control Line and remained below for more than 4 weeks	Triggers – Risk of shortage of supply established: 1.Regional Stocks <Normal Control Line and approaching Drought Control Line (within 1-2 weeks) 2.Regional Stocks have crossed Drought Control Line and remained below for more than 4 weeks
Most likely authorisation in a drought (permit or order)		Permit	Permit	Permit	Permit	Permit	Permit	Permit	Permit
Current Legal Requirement (Compensation release, minimum maintained flow or authorised abstraction limit)		Compensation release of 2.70 Ml/d when stocks are below a control line specified in the licence agreement or 4.00 Ml/d when above this control line.	Maintain a combined seasonal compensation flow of; 9.00 Ml/d November to April and October if stocks above control line 7.00 Ml/d May to September and October if stocks below control line	Compensation release of 16.00 Ml/d when stocks are below a control line specified in the licence agreement or 21.70 Ml/d when above this control line	If reservoir stocks are above control line (upper band): 7.00 Ml/d from November to March 5.00 Ml/d in April and October 3.50 Ml/d from May to September If the reservoir stocks are below control line (lower band): 4.00 Ml/d from November to March, 3.00 Ml/d in April and October 2.00 Ml/d from May to September	Compensation release of 9.10 Ml/d when stocks are below a control line specified in the licence agreement or 12.00 Ml/d when above this control line	Compensation release of 18.00 Ml/d when stocks are below a control line specified in the licence agreement or 28.00 Ml/d when above this control line	The licence agreement requires a 10.30 Ml/d compensation release from downstream of the reservoir however, under normal operations the release is made from the reservoir	Comp flow will be 3.3Ml/d all year round when licence formalised
Deployable Output of action - Variable depending on conditions and duration of drought permit	Action 1 Description	Reduce compensation release by 50% to 2.00 Ml/d when above the control line providing a 2.00 Ml/d benefit, or 1.35 Ml/d when below the control line providing a 1.35 Ml/d benefit	Reduce combined compensation release by 50% to 4.50 Ml/d providing a benefit of 4.50 Ml/d, or 3.50 Ml/d providing a benefit of 3.50 Ml/d	Reduce compensation release by 50% to 10.85 Ml/d when above the control line providing a 10.85 ML/d benefit, or 8 Ml/d when below the control line providing a 8 Ml/d benefit	If reservoir stocks are above control line (upper band) reduce by 50% to: 3.50 Ml/d from November to March providing a benefit of 3.50 Ml/d, 2.50 Ml/d in April and October providing a benefit of 2.50 Ml/d, 1.75 Ml/d from May to September providing a benefit of 1.75 Ml/d If reservoir stocks are below control line (lower band) reduce by 50%: 2.00 Ml/d from November to March, providing a benefit of 2.00 Ml/d, 1.50 Ml/d in April and October providing a benefit of 1.50 Ml/d, 1.00 Ml/d from May to September providing a benefit of 1.00 Ml/d	Reduce compensation release by 50% to 6.00 Ml/d when above the control line providing a 6.00 Ml/d benefit, or 4.55 Ml/d when below the control line providing a 4.55 Ml/d benefit.	Reduce compensation release by 50% to 14.00 Ml/d when above the control line providing a 14 Ml/d benefit, or 9 Ml/d when below the control line providing a 9 Ml/d benefit	Reduce compensation release when stocks are below the specified control line by 50% to 5.15 Ml/d providing 5.15 Ml/d benefit	Trigger 1. Reduce by 50% to 1.65 Ml/d
	Action 2 Description	Reduce compensation release by 67% to 1.33 Ml/d when above the control line providing a benefit of 2.67 Ml/d, or 0.90 Ml/d when below the control line providing a benefit of 1.80 Ml/d	Reduce combined compensation release by 67% to 3.00 Ml/d providing a benefit of 6.00 Ml/d, or 2.33 Ml/d providing a benefit of 4.67 Ml/d.	Reduce compensation release by 67% to 7.23 Ml/d when above the control line providing a benefit of 14.47 Ml/d, or 5.33 Ml/d when below the control line providing a benefit of 10.67 Ml/d.	If reservoir stocks are above control line (upper band) reduce by 67%: 2.33 Ml/d from November to March providing a benefit of 4.67 Ml/d, 1.66 Ml/d in April and October providing a benefit of 3.34 Ml/d, 1.17 Ml/d from May to September providing a benefit of 2.33 Ml/d. If reservoir stocks are below both control line (lower band) reduce by 67%: 1.33 Ml/d from November to March providing a benefit of 2.67 Ml/d, 1.00 Ml/d in April and October providing a benefit of 2.00 Ml/d 0.67 Ml/d from May to September providing a benefit of 1.33 Ml/d.	Reduce compensation release by 67% to 4.00 Ml/d when above the control line providing a 8.00 Ml/d benefit, or 3.03 Ml/d when below the control line providing a 6.07 Ml/d benefit.	Reduce compensation release by 67% to 9.33 Ml/d when above the control line providing a 18.67 Ml/d benefit or 6.00 Ml/d when below the control line providing a 12 Ml/d benefit.	Reduce compensation release when stocks are below the specified control line by 67% to 3.43 Ml/d providing 6.87 Ml/d benefit	Trigger 2. Reduce by 67% to 1.1 Ml/d
Implementation timetable Preparation time, time of year effective, duration		Preparation time: 4 weeks prior to advertising, implementation period 5-6 weeks (advertisement, representation, enquiry, granting) Time of year effective: implemented when reservoir stocks approach drought control line so could be effective any time of year. Compensation release reductions may be phased to minimise effect on downstream watercourses. Duration: Minimum period of restriction typically 12 weeks							
Permissions required and constraints Including details of liaison with bodies responsible for giving any permits or approvals		Permission from Defra or the Environment Agency required following application of a drought order or permit. A public enquiry may be required. Liaise with Environment Agency.							
Risks associated with option		Reduction in compensation releases / maintained flows have potential environmental impacts. These will be assessed through the Environmental Assessment Report submitted with the application.							
Risk to the Environment (Major/Moderate/Minor or uncertain)		Hydrological and water quality assessment identified a zone of impact of the drought option of: Scout Dike and River Don The assessment concluded that there would be Major impacts on hydrology (river flow and level) and a Moderate risk to water quality associated with this option.	Hydrological and water quality assessment identified a zone of impact of the drought option of: River Don. The assessment concluded that there would be Major impacts on hydrology (river flow and level) and a Moderate risk to water quality associated with this option.	Hydrological and water quality assessment identified a zone of impact of the drought option of: Little Don River and River Don. The assessment concluded that there would be Major impacts on hydrology (river flow and level) and a Moderate risk to water quality associated with this option.	Hydrological and water quality assessment identified a zone of impact of the drought option of: Little Don River. The assessment concluded that there would be Major impacts on hydrology (river flow and level) and a Uncertain risk to water quality associated with this option.	Hydrological and water quality assessment identified a zone of impact of the drought option of: Ewden Beck and River Don. The assessment concluded that there would be Major impacts on hydrology (river flow and level) and a Moderate risk to water quality associated with this option.	Hydrological and water quality assessment identified a zone of impact of the drought option of: River Loxley and River Don. The assessment concluded that there would be Major impacts on hydrology (river flow and level) and a Moderate risk to water quality associated with this option.	Hydrological and water quality assessment identified a zone of impact of the drought option of: River Rivelin, River Loxley and River Don. The assessment concluded that there would be Major impacts on hydrology (river flow and level) and a Moderate risk to water quality associated with this option.	Hydrological and water quality assessment identified a zone of impact of the drought option of: Dale Dike. The assessment concluded that there would be Major impacts on hydrology (river flow and level) and a Minor risk to water quality associated with this option.
Summary of likely environmental impacts Include details for features of moderate and major sensitivity and minor sensitivity features from designated sites		Environmental assessment has identified potential environmental sensitivities (prior to mitigation) within the zone of influence to: NERC and Notable Fish – numerous (Minor to Major) White-clawed crayfish (Moderate) Water vole (Moderate) Snipefly *Atherix ibis* (Moderate) Mayfly *Paraleptophlebia cincta* (Moderate) WFD compliance Macroinvertebrates (Moderate) Fish (Major) Middle River Don: Hillsborough to City Centre LWS (Moderate) Upper River Don: Deepcar to Hillsborough LWS (Moderate)	Environmental assessment has identified potential environmental sensitivities (prior to mitigation) within the zone of influence to: NERC and Notable Fish – numerous (Minor to Major) White-clawed crayfish (Moderate) Water vole (Moderate) Snipefly Atherix ibis (Moderate) Mayfly Paraleptophlebia cincta (Moderate) WFD compliance Macroinvertebrates (Moderate) Fish (Major) Middle River Don: Hillsborough to City Centre LWS (Moderate) Upper River Don: Deepcar to Hillsborough LWS (Moderate)	Environmental assessment has identified potential environmental sensitivities (prior to mitigation) within the zone of influence to: NERC and Notable Fish – numerous (Minor to Major) White-clawed crayfish (Moderate) Water vole (Moderate) WFD compliance Fish (Major) Macroinvertebrates (Moderate) Middle River Don: Hillsborough to City Centre LWS (Moderate) Upper River Don: Deepcar to Hillsborough LWS (Moderate)	Environmental assessment has identified potential environmental sensitivities (prior to mitigation) within the zone of influence to: NERC and Notable Fish – numerous (Minor to Major) White-clawed crayfish (Moderate) Water vole (Moderate) WFD compliance Fish (Major) Macroinvertebrates (Moderate) Middle River Don: Hillsborough to City Centre LWS (Moderate) Upper River Don: Deepcar to Hillsborough LWS (Moderate)	Environmental assessment has identified potential environmental sensitivities (prior to mitigation) within the zone of influence to: NERC and Notable Fish – numerous (Minor to Major) White-clawed crayfish (Moderate) Water vole (Moderate) WFD compliance Macroinvertebrates (Moderate) Fish (Major) Middle River Don: Hillsborough to City Centre LWS (Moderate) Upper River Don: Deepcar to Hillsborough LWS (Moderate) Lower Ewden Beck LWS (Moderate)	Environmental assessment has identified potential environmental sensitivities (prior to mitigation) within the zone of influence to: NERC and Notable Fish – numerous (Moderate to Major) White-clawed crayfish (Moderate) Water vole (Moderate) Water beetle *Oreodytes davisii* (Moderate) WFD compliance Macroinvertebrates (Moderate) Fish (Major) Acorn Hill and Little Matlock Wood LWS (Moderate) Malin Bridge to River Don LWS (Moderate) Middle River Don: Hillsborough to City Centre LWS (Moderate)	Environmental assessment has identified potential environmental sensitivities (prior to mitigation) within the zone of influence to: NERC and Notable Fish – numerous (Moderate to Major) White clawed crayfish (Moderate) Water vole (Moderate) WFD compliance Macroinvertebrates (Moderate) Fish (Major) Lower Rivelin Valley LWS (Moderate) Middle Rivelin Valley LWS (Moderate) Middle River Don: Hillsborough to City Centre LWS (Moderate)	Environmental assessment has identified potential environmental sensitivities (prior to mitigation) within the zone of influence to: NERC and Notable Fish – numerous (Major to Moderate) White clawed crayfish (Moderate) Water vole (Moderate) Water beetle *Oreodytes davisii (Moderate)* WFD compliance Macroinvertebrates (Moderate) Fish (Major)
Baseline information used		Environmental assessment used YWS and EA data and information on: reservoir management, measured reservoir outflow, water resource modelling of outflow in critical drought years, gauged river flows and levels; routine WFD water quality monitoring, water quality and flow pressures (abstraction licence and discharge consent registers), YWS STW information; macroinvertebrate sampling data and LIFE, WHPTNATXA and WHPTASPT EQI scores, fish abundances from monitoring surveys, Fisheries Classification Scheme (2) data and publicly available data on designated sites, distributions of NERC Act Section 41 priority species, distribution of Invasive and Non-Native Species and recreational resources, in addition to local EA / YWS knowledge.							
Summary of additional baseline monitoring requirements		Details of additional baseline monitoring requirements, are incorporated within the Environmental Monitoring Plan, listing the features to be monitored and methods used; location, timing and frequency of surveys; and who will undertake the monitoring.							
Mitigation measures		Mitigation measures and accompanying monitoring have been identified for serious impacts of the drought option (features of moderate and major sensitivities, and minor sensitivities to designated sites - as listed above) through discussion with the EA. Details are incorporated within the Environmental Monitoring Plan							
Impact on other activities e.g. fisheries, industry etc		Screening identified no potential impacts.	Screening identified no potential impacts.	Screening identified no potential impacts.	Screening identified no potential impacts.	Screening identified no potential impacts.	Screening identified no potential impacts.	Screening identified no potential impacts.	Screening identified no potential impacts.
WFD Compliance		Reach 1: Impacts on macroinvertebrates and fish would be moderate. The impacts would not be associated with WFD deterioration based on the criteria outlined in the Environmental Assessment Report. Reach 2: Impacts on macroinvertebrates would be moderate and impacts on fish would be major. The impacts would not be associated with WFD deterioration based on the criteria outlined in the Environmental Assessment Report. Reach 3 and 4: Impacts on macroinvertebrates and fish would be moderate. The impacts would not be associated with WFD deterioration based on the criteria outlined in the Environmental Assessment Report. Reach 5: Impacts on macroinvertebrates would be moderate and impacts on fish would be major. The impacts would not be associated with WFD deterioration based on the criteria outlined in the Environmental Assessment Report.	Reach 1 - Reach 3: Impacts on macroinvertebrates and fish would be moderate. The impacts would not be associated with WFD deterioration based on the criteria outlined in the Environmental Assessment Report. Reach 4: Impacts on macroinvertebrates would be moderate and impacts on fish would be major. The impacts would not be associated with WFD deterioration based on the criteria outlined in the Environmental Assessment Report. Reach 5 and 6: Impacts on macroinvertebrates and fish would be moderate. The impacts would not be associated with WFD deterioration based on the criteria outlined in the Environmental Assessment Report. Reach 7:. Impacts on macroinvertebrates would be moderate and impacts on fish would be major. The impacts would not be associated with WFD deterioration based on the criteria outlined in the Environmental Assessment Report.	Reach 1: Impacts on macroinvertebrates and fish would be moderate. The impacts would not be associated with WFD deterioration based on the criteria outlined in the Environmental Assessment Report. Reach 2 and 3: Impacts on macroinvertebrates and fish would be moderate. The impacts would not be associated with WFD deterioration based on the criteria outlined in the Environmental Assessment Report. Reach 4: Impacts on macroinvertebrates would be moderate and impacts on fish would be major. The impacts would not be associated with WFD deterioration based on the criteria outlined in the Environmental Assessment Report.	Reach 1: Impacts on macroinvertebrates and fish would be moderate. The impacts would not be associated with WFD deterioration based on the criteria outlined in the Environmental Assessment Report.	Reach 1: Impacts on macroinvertebrates and fish would be moderate. The impacts would not be associated with WFD deterioration based on the criteria outlined in the Environmental Assessment Report. Reach 2: Impacts on macroinvertebrates and fish would be moderate. The impacts would not be associated with WFD deterioration based on the criteria outlined in the Environmental Assessment Report. Reach 3: Impacts on macroinvertebrates would be moderate and impacts on fish would be major. The impacts would not be associated with WFD deterioration based on the criteria outlined in the Environmental Assessment Report.	Reach 1 and Reach 2: Impacts on macroinvertebrates would be moderate and impacts on fish would be major. The impacts would not be associated with WFD deterioration based on the criteria outlined in the Environmental Assessment Report. Reach 3: Impacts on macroinvertebrates would be moderate and impacts on fish would be major. The impacts would not be associated with WFD deterioration based on the criteria outlined in the Environmental Assessment Report.	Reach 1: Impacts on macroinvertebrates would be moderate and impacts on fish would be major. The impacts would not be associated with WFD deterioration based on the criteria outlined in the Environmental Assessment Report. Reach 2: Impacts on macroinvertebrates would be moderate and impacts on fish would be major. The impacts would not be associated with WFD deterioration based on the criteria outlined in the Environmental Assessment Report. Reach 3: Impacts on macroinvertebrates would be moderate and impacts on fish would be major. The impacts would not be associated with WFD deterioration based on the criteria outlined in the Environmental Assessment Report.	Reach 1: Impacts on macroinvertebrates and fish would be moderate. The impacts would not be associated with WFD deterioration based on the criteria outlined in the Environmental Assessment Report.

Yorkshire Water Drought Plan supply side options: South West Area Reservoir Group
Type of option: **Reservoir group - compensation reduction**
Location / Area affected or whole supply zone: **Grid SWZ South West Area**
Summary description of actions: **Compensation flows reduced to half or one third of normal flows to preserve reservoir stocks and extend the period that compensation flows can be maintained. Reductions will be considered on a selective basis as some releases are more critical than others**
Preceding actions: **Publicity campaign and temporary use bans in force (April to September)**

Option name	South West Area Reservoir 1	South West Area Reservoir 2	South West Area Reservoir 3	South West Area Reservoir 4	South West Reservoir 5
Trigger(s)	Triggers – Risk of shortage of supply established: 1.Regional Stocks <Normal Control Line and approaching Drought Control Line (within 1-2 weeks) 2.Regional Stocks have crossed Drought Control Line and remained below for more than 4 weeks	Triggers – Risk of shortage of supply established: 1.Regional Stocks <Normal Control Line and approaching Drought Control Line (within 1-2 weeks) 2.Regional Stocks have crossed Drought Control Line and remained below for more than 4 weeks	Triggers – Risk of shortage of supply established: 1.Regional Stocks <Normal Control Line and approaching Drought Control Line (within 1-2 weeks) 2.Regional Stocks have crossed Drought Control Line and remained below for more than 4 weeks	Triggers – Risk of shortage of supply established: 1.Regional Stocks <Normal Control Line and approaching Drought Control Line (within 1-2 weeks) 2.Regional Stocks have crossed Drought Control Line and remained below for more than 4 weeks	Triggers – Risk of shortage of supply established: 1.Regional Stocks <Normal Control Line and approaching Drought Control Line (within 1-2 weeks) 2.Regional Stocks have crossed Drought Control Line and remained below for more than 4 weeks
Most likely authorisation in a drought (permit or order)	Permit	Permit	Permit	Permit	Permit
Current Legal Requirement (Compensation release, minimum maintained flow or authorised abstraction limit)	Compensation release 2.70 Ml/d	Compensation release; Jan-Sep- 3.78Ml/d at all reservoir levels Oct-Dec 15.12Ml/d, or 7.56 Ml/d when stocks below 50%.	Compensation release; Jan-Sep 3.24 Ml/d at all reservoir levels Oct-Dec 12.96 Ml/d or 6.48 Ml/d when stocks below 50%	Current compensation release of 3.416 Ml/d under an LEP agreed with the Environment Agency (statutory requirement for 82,500 gallons/hour from 6:00 am to 5:45 pm Mon - Fri and 6:00 am to 11:00 am Saturday)	Compensation release 3.019 Ml/d
Deployable Output of action - Variable depending on conditions and duration of drought permit	Reduce compensation release by 50% to 1.35Ml/d giving 1.35Ml/d benefit.	Compensation release reduced; Jan- Sept by 50% to 1.89 Ml/d providing a benefit of 1.89 or Oct- Dec by 50% to 3.78 Ml/d providing a benefit of 3.78 Ml/d when stocks below 50% (Control line is suspended with a drought permit)	Compensation release reduced; Jan-Sept by 50% to 1.62 Ml/d providing a benefit of 1.62Ml/d; or Oct-Dec by 50% to 3.24 Ml/d providing a benefit of 3.24 Ml/d when stocks below 50% (Control line is suspended with a drought permit).	Reduce the current compensation release by 50% to 1.71 Ml/d providing a benefit of 1.71 Ml/d. The permit application would request a temporary change to the statutory requirement.	Compensation release reduced by 50% to 1.51 Ml/d providing a benefit of 1.51 Ml/d
	Reduce compensation release by 67% to 0.90Ml/d providing 1.80Ml/d benefit	Compensation release reduced; Jan- Sept by 67% to 1.26 Ml/d providing a benefit of 2.52 Ml/d; or Oct- Dec reduce by 67% to 2.52 Ml/d providing a benefit of 5.04 ml/d when stocks below 50% (Control line is suspended with a drought permit)	Compensation release reduced; Jan- Sept by 67% to 1.08 Ml/d providing a benefit of 2.16 ML/d; or Oct- Dec by 67% to 2.16 Ml/d providing a benefit of 4.32 Ml/d when stocks below 50% stocks (Control line is suspended with a drought permit)	Reduce the current compensation release by 67% to 1.14 Ml/d, providing a benefit of 2.28 Ml/d. The permit application would request a temporary change to the statutory requirement.	Compensation release reduced by 67% to 1.01 Ml/d providing a benefit of 2.01 Ml/d
Implementation timetable Preparation time, time of year effective, duration	Preparation time: 4 weeks prior to advertising, implementation period 5-6 weeks (advertisement, representation, enquiry, granting) Time of year effective: implemented when reservoir stocks approach drought control line so could be effective any time of year. Compensation release reductions may be phased to minimise effect on downstream watercourses. Duration: Minimum period of restriction typically 12 weeks				
Permissions required and constraints Including details of liaison with bodies responsible for giving any permits or approvals	Permission from Defra or the Environment Agency required following application of a drought order or permit. A public enquiry may be required. Liaise with Environment Agency.				
Risks associated with option	Reduction in compensation releases / maintained flows have potential environmental impacts. These will be assessed through the Environmental Assessment Report submitted with the application.				
Risk to the Environment (Major/Moderate/Minor or uncertain)	Hydrological and water quality assessment identified a zone of impact of the drought option of: Gorple Lower Brook, Graining Water, Hebden Water and River Calder. The assessment concluded that there would be Major impacts on hydrology (river flow and level) and a Moderate risk to water quality associated with this option.	Hydrological and water quality assessment identified a zone of impact of the drought option of: Alcomden Water, Hebden Water and River Calder. The assessment concluded that there would be Major impacts on hydrology (river flow and level) and a Moderate risk to water quality associated with this option.	Hydrological and water quality assessment identified a zone of impact of the drought option of: Graining Water, Hebden Water and River Calder. The assessment concluded that there would be Major impacts on hydrology (river flow and level) and a Moderate risk to water quality associated with this option.	Hydrological and water quality assessment identified a zone of impact of the drought option of: Hebble Brook and River Calder. The assessment concluded that there would be Major impacts on hydrology (river flow and level) and a Moderate risk to water quality associated with this option.	Hydrological and water quality assessment identified a zone of impact of the drought option of: Luddenden Brook and River Calder. The assessment concluded that there would be Major impacts on hydrology (river flow and level) and a Moderate risk to water quality associated with this option.
Summary of likely environmental impacts Include details for features of moderate and major sensitivity and minor sensitivity features from designated sites	Environmental assessment has identified potential environmental sensitivities (prior to mitigation) within the zone of influence to: NERC and Notable Fish – numerous (Minor to Major) White-clawed crayfish (Moderate) Water vole (Moderate) WFD compliance Macroinvertebrates (Moderate) Fish (Major)	Environmental assessment has identified potential environmental sensitivities (prior to mitigation) within the zone of influence to: White-clawed crayfish (Moderate) Water vole (Moderate) NERC and Notable Fish – numerous (Minor to Major) WFD compliance Macroinvertebrates (Moderate) Fish (Major)	Environmental assessment has identified potential environmental sensitivities (prior to mitigation) within the zone of influence to: White-clawed crayfish (Moderate) Water vole (Moderate) NERC and Notable Fish - numerous (Minor to Major) WFD compliance Macroinvertebrates (Moderate) Fish (Major)	Environmental assessment has identified potential environmental sensitivities (prior to mitigation) within the zone of influence to: NERC and Notable Fish- numerous (Minor to Moderate) White-clawed crayfish (Moderate) Water vole (Moderate) WFD compliance Macroinvertebrates (Major) Fish (Moderate)	Environmental assessment has identified potential environmental sensitivities (prior to mitigation) within the zone of influence to: White-clawed crayfish (Moderate) Water Vole (Moderate) NERC and Notable Fish – numerous (Minor to Major) WFD compliance Macroinvertebrates (Moderate) Fish (Major)
Baseline information used	Environmental assessment used YWS and EA data and information on: reservoir management, measured reservoir outflow, water resource modelling of outflow in critical drought years, gauged river flows and levels; routine WFD water quality monitoring, water quality and flow pressures (abstraction licence and discharge consent registers), YWS STW information; macroinvertebrate sampling data and LIFE, WHPTNATXA and WHPTASPT EQI scores, fish abundances from monitoring surveys, Fisheries Classification Scheme (2) data and publicly available data on designated sites, distributions of NERC Act Section 41 priority species, distribution of Invasive and Non-Native Species and recreational resources, in addition to local EA / YWS knowledge.				
Summary of additional baseline monitoring requirements	Details of additional baseline monitoring requirements, are incorporated within the Environmental Monitoring Plan, listing the features to be monitored and methods used; location, timing and frequency of surveys; and who will undertake the monitoring.				
Mitigation measures	Mitigation measures and accompanying monitoring have been identified for serious impacts of the drought option (features of moderate and major sensitivities, and minor sensitivities to designated sites - as listed above) through discussion with the EA. Details are incorporated within the Environmental Monitoring Plan				
Impact on other activities e.g. fisheries, industry etc	Screening identified no further impacts.	Screening identified no further impacts.	Screening identified no further impacts.	Screening identified possible impacts on: Angling - Hebble Brook (low)	Screening identified possible impacts on: Angling - Luddenden Brook (low)
WFD Compliance	Reach 1 and Reach 2: Impacts on fish and macroinvertebrates would be moderate. The impacts would not be associated with WFD deterioration based on the criteria outlined in the Environmental Assessment Report. Reach 3: Impacts on fish would be major and impacts on macroinvertebrates would be moderate. The impacts would not be associated with WFD deterioration based on the criteria outlined in the Environmental Assessment Report. Reach 4 and 5: Impacts on fish and macroinvertebrates would be minor. The impacts would not be associated with WFD deterioration based on the criteria outlined in the Environmental Assessment Report. Reach 5. Impacts on fish and macroinvertebrates would be minor. The impacts would not be associated with WFD deterioration based on the criteria outlined in the Environmental Assessment Report.	Reach 1: Impacts on macroinvertebrates and fish would be moderate. The impacts would not be associate with WFD deterioration based on the criteria outlined in the Environmental Assessment Report. Reach 2: Impacts on fish would be major and impacts on macroinvertebrates would be moderate. The impacts would not be associated with WFD deterioration based on the criteria outlined in the Environmental Assessment Report. Reach 3 and 4: Impacts on fish and macroinvertebrates would be minor. The impacts would not be associated with WFD deterioration based on the criteria outlined in the Environmental Assessment Report. Reach 4: Impacts on fish and macroinvertebrates would be minor. The impacts would not be associated with WFD deterioration based on the criteria outlined in the Environmental Assessment Report.	Reach 1 and Reach 2: Impacts on fish and macroinvertebrates would be moderate. The impacts would not be associated with WFD deterioration based on the criteria outlined in the Environmental Assessment Report. Reach 3: Impacts on fish would be major and impacts on macroinvertebrates would be moderate. The impacts would not be associated with WFD deterioration based on the criteria outlined in the Environmental Assessment Report. Reach 4 and 5: Impacts on fish and macroinvertebrates would be minor. The impacts would not be associated with WFD deterioration based on the criteria outlined in the Environmental Assessment Report. Reach 5. Impacts on fish and macroinvertebrates would be minor. The impacts would not be associated with WFD deterioration based on the criteria outlined in the Environmental Assessment Report.	Reach 1: Impacts on macroinvertebrates would be major and fish would be moderate. The impacts would not be associated with WFD deterioration based on the criteria outlined in the Environmental Assessment Report. Reach 2: Impacts on macroinvertebrates and fish would be minor. The impacts would not be associated with WFD deterioration based on the criteria outlined in the Environmental Assessment Report.	Reach 1: Impacts on macroinvertebrates would be moderate and fish would be major. The impacts would not be associated with WFD deterioration based on the criteria outlined in the Environmental Assessment Report. Reach 2 and 3: Impacts on fish and macroinvertebrates would be minor. The impacts would not be associated with WFD deterioration based on the criteria outlined in the Environmental Assessment Report. Reach 3. Impacts on fish and macroinvertebrates would be minor. The impacts would not be associated with WFD deterioration based on the criteria outlined in the Environmental Assessment Report.

South West Area Reservoir 6	**South West Area Reservoir 7**	**South West Area Reservoir 8**	**South West Area Reservoir 9**	**South West Area Reservoir 10**
Triggers – Risk of shortage of supply established: 1.Regional Stocks <Normal Control Line and approaching Drought Control Line (within 1-2 weeks) 2.Regional Stocks have crossed Drought Control Line and remained below for more than 4 weeks	Triggers – Risk of shortage of supply established: 1.Regional Stocks <Normal Control Line and approaching Drought Control Line (within 1-2 weeks) 2.Regional Stocks have crossed Drought Control Line and remained below for more than 4 weeks	Triggers – Risk of shortage of supply established: 1.Regional Stocks <Normal Control Line and approaching Drought Control Line (within 1-2 weeks) 2.Regional Stocks have crossed Drought Control Line and remained below for more than 4 weeks	Triggers – Risk of shortage of supply established: 1.Regional Stocks <Normal Control Line and approaching Drought Control Line (within 1-2 weeks) 2.Regional Stocks have crossed Drought Control Line and remained below for more than 4 weeks	Triggers – Risk of shortage of supply established: 1.Regional Stocks <Normal Control Line and approaching Drought Control Line (within 1-2 weeks) 2.Regional Stocks have crossed Drought Control Line and remained below for more than 4 weeks
Permit	Permit	Condition on a permit for South West Reservoir 9 and 10	Permit	Permit
Compensation release is varied seasonally; Nov-Jan 10.60 Ml/d Feb-May and Aug-Oct 5.80 Ml/d June 4.50 Ml/d July 3.20 Ml/d	Compensation release is varied seasonally; Nov-Mar 6.90 Ml/d Apr-May and Aug-Oct 5.40 Ml/d Jun -Jul 4.80 Ml/d	Currently operating at a maintained flow of 18.00 Ml/d under a flow trial agreement	Current compensation release is 3.41Ml/d under a flow trial agreement with the Environment Agency (statutory compensation release is 18.01 Ml/d between 06:00 & 18:00 on Mon to Sat & 3.410 Ml/d all other hours) Must also ensure that there is a flow of 18.00 Ml/d at South West Area Reservoir 8 supplied from South West Area Reservoir 9 & South West Area Reservoir 10	Normal compensation release 5.90 Ml/d (stated on authorising Act as 898,000 gallons/day to stream & 400,000 gallons/day to mill continuous) Must also ensure that there is a flow of 18.00 Ml/d at South West Area Reservoir 8 supplied from South West Area Reservoir 9 & South West Area Reservoir 10
Reduce the current compensation release by 50% to; Nov-Jan 5.30 Ml/d providing a benefit of 5.30 Ml/d Feb-May and Aug-Oct 2.90 Ml/d providing a benefit of 2.90 Ml/d June 2.25 Ml/d providing a benefit of 2.25 Ml/d July 1.60 Ml/d providing a benefit of 1.60 Ml/d	Reduce the current compensation release by 50% to; Nov-March 3.45 Ml/d providing a benefit of 3.45 Ml/d Apr-May and Aug-Oct 2.70 Ml/d providing a benefit of 2.70 Ml/d Jun-Jul 2.40 Ml/d providing a benefit of 2.40 Ml/d	Reduce maintained flow by 50% to 9.00 Ml/d providing a 9.00 Ml/d benefit	Flow trial agreement release of 3.41 Ml/d reduced by 50% to 1.71 Ml/d providing 1.70 Ml/d benefit Reduced maintained flow at South West Area Reservoir 8 by 50% to 9.00 Ml/d supplied from South West Area Reservoir 9 & South West Area Reservoir 10, providing a 9 Ml/d benefit	Compensation release reduced by 50% to 2.95 Ml/d providing 2.95 Ml/d benefit Must also ensure that there is a flow of 18.00 Ml/d at South West Area Reservoir 8 supplied from South West Area Reservoir 9 & South West Area Reservoir 10
Reduce the current compensation release by 67% to; Nov-Jan 3.53 Ml/d providing a benefit of 7.07 Ml/d Feb-May and Aug-Oct 1.93 Ml/d providing a benefit of 3.87 Ml/d June 1.50 Ml/d providing a benefit of 3.0 M/d July 1.07 Ml/d providing a benefit of 2.13 Ml/d	Reduce the current compensation release by 67% to; Nov-March 2.30 Ml/d providing a benefit of 4.60 Ml/d Apr-May and Aug-Oct 1.80 Ml/d providing a benefit of 3.60 Ml/d Jun-Jul 1.60 Ml/d providing a benefit of 3.20 Ml/d	Reduce maintained flow by 67% to 6.00 Ml/d providing 12.00Ml/d benefit	Flow trial agreement release of 3.41 Ml/d reduced by 67% to 1.14 Ml/d providing 2.27 Ml/d benefit Reduced maintained flow at South West Area Reservoir 8 by 50% to 6.00 Ml/d supplied from South West Area Reservoir 9 & South West Area Reservoir 10, providing a benefit of 12 Ml/d.	Compensation release reduced by 67% to 1.97 Ml/d providing 3.93 Ml/d benefit Reduced maintained flow at South West Area Reservoir 8 by 50% to 6.00 Ml/d supplied from South West Area Reservoir Area 9 & South West Area Reservoir 10, providing a benefit of 12 Ml/d.
Preparation time: 4 weeks prior to advertising, implementation period 5-6 weeks (advertisement, representation, enquiry, granting) Time of year effective: implemented when reservoir stocks approach drought control line so could be effective any time of year. Compensation release reductions may be phased to minimise effect on downstream watercourses. Duration: Minimum period of restriction typically 12 weeks		Preparation time: 4 weeks prior to advertising, implementation period 5-6 weeks (advertisement, representation, enquiry, granting) Time of year effective: implemented when reservoir stocks approach drought control line so could be effective any time of year. Compensation release reductions may be phased to minimise effect on downstream watercourses. Duration: Minimum period of restriction typically 12 weeks		
Permission from Defra or the Environment Agency required following application of a drought order or permit. A public enquiry may be required. Liaise with Environment Agency.		Permission from Defra or the Environment Agency required following application of a drought order or permit. A public enquiry may be required. Liaise with Environment Agency.		
Reduction in compensation releases / maintained flows have potential environmental impacts. These will be assessed through the Environmental Assessment Report submitted with the application.		Reduction in compensation releases / maintained flows have potential environmental impacts. These will be assessed through the Environmental Assessment Report submitted with the application.		
Hydrological and water quality assessment identified a zone of impact of the drought option of: Digley Brook, River Holme, River Colne and River Calder. The assessment concluded that there would be Major impacts on hydrology (river flow and level) and a Moderate risk to water quality associated with this option.	Hydrological and water quality assessment identified a zone of impact of the drought option of: River Holme, River Colne and River Calder. The assessment concluded that there would be Major impacts on hydrology (river flow and level) and a Moderate risk to water quality associated with this option.	Hydrological and water quality assessment identified a zone of impact of the drought option of: River Ryburn and River Calder. The assessment concluded that there would be Major impacts on hydrology (river flow and level) and a Moderate risk to water quality associated with this option.	Hydrological and water quality assessment identified a zone of impact of the drought option of: Booth Dean Clough, River Ryburn and River Calder. The assessment concluded that there would be Major impacts on hydrology (river flow and level) and a Moderate risk to water quality associated with this option.	Hydrological and water quality assessment identified a zone of impact of the drought option of: River Ryburn and River Calder. The assessment concluded that there would be Major impacts on hydrology (river flow and level) and a Moderate risk to water quality associated with this option.
Environmental assessment has identified potential environmental sensitivities (prior to mitigation) within the zone of influence to: NERC and Notable Fish – numerous (Minor to Major) White-clawed crayfish (Moderate) Water Vole (Moderate) Potamophylax rotundipennis (Moderate) WFD Compliance Fish (Major) Invertebrates (Moderate) Cromwell Bottom LNR/ LWS (Moderate), Southern Washlands LNR (Minor), Hortbury Lagoons (Minor) & Altoft Ings (Minor).	Environmental assessment has identified potential environmental sensitivities (prior to mitigation) within the zone of influence to: NERC and Notable Fish – numerous (Minor to Major) White-clawed crayfish (Moderate) Water vole (Moderate) Potamophylax rotundipennis (Moderate) WFD Compliance Fish (Major) Macroinvertebrates (Moderate) Cromwell Bottom LNR/ LWS (Moderate), Southern Washlands LNR (Minor), Hortbury Lagoons (Minor) & Altoft Ings (Minor).	Environmental assessment has identified potential environmental sensitivities (prior to mitigation) within the zone of influence to: NERC and Notable Fish – numerous (Minor to Major) White-clawed crayfish (Moderate) Water Vole (Moderate) WFD compliance Macroinvertebrates (Major) Fish (Major)	Environmental assessment has identified potential environmental sensitivities (prior to mitigation) within the zone of influence to: White-clawed crayfish (Moderate) Water vole (Moderate) NERC and Notable Fish – numerous (Minor to Major) WFD compliance Macroinvertebrates (Major) Fish (Major)	Environmental assessment has identified potential environmental sensitivities (prior to mitigation) within the zone of influence to: NERC and Notable Fish – numerous (Minor to Major) White-clawed crayfish (Moderate) Water Vole (Moderate) WFD compliance Macroinvertebrates (Major) Fish (Major)
Environmental assessment used YWS and EA data and information on: reservoir management, measured reservoir outflow, water resource modelling of outflow in critical drought years, gauged river flows and levels; routine WFD water quality monitoring, water quality and flow pressures (abstraction licence and discharge consent registers), YWS STW information; macroinvertebrate sampling data and LIFE, WHPTNATXA and WHPTASPT EQI scores, fish abundances from monitoring surveys, Fisheries Classification Scheme (2) data and publicly available data on designated sites, distributions of NERC Act Section 41 priority species, distribution of Invasive and Non-Native Species and recreational resources, in addition to local EA / YWS knowledge.		Environmental assessment used YWS and EA data and information on: reservoir management, measured reservoir outflow, water resource modelling of outflow in critical drought years, gauged river flows and levels; routine WFD water quality monitoring, water quality and flow pressures (abstraction licence and discharge consent registers), YWS STW information; macroinvertebrate sampling data and LIFE, WHPTNATXA and WHPTASPT EQI scores, fish abundances from monitoring surveys, Fisheries Classification Scheme (2) data and publicly available data on designated sites, distributions of NERC Act Section 41 priority species, distribution of Invasive and Non-Native Species and recreational resources, in addition to local EA / YWS knowledge.		
Details of additional baseline monitoring requirements, are incorporated within the Environmental Monitoring Plan, listing the features to be monitored and methods used; location, timing and frequency of surveys; and who will undertake the monitoring.		Details of additional baseline monitoring requirements, are incorporated within the Environmental Monitoring Plan, listing the features to be monitored and methods used; location, timing and frequency of surveys; and who will undertake the monitoring.		
Mitigation measures and accompanying monitoring have been identified for serious impacts of the drought option (features of moderate and major sensitivities, and minor sensitivities to designated sites - as listed above) through discussion with the EA. Details are incorporated within the Environmental Monitoring Plan		Mitigation measures and accompanying monitoring have been identified for serious impacts of the drought option (features of moderate and major sensitivities, and minor sensitivities to designated sites - as listed above) through discussion with the EA. Details are incorporated within the Environmental Monitoring Plan		
Screening identified possible impacts on: Angling - River Holme (low) Angling - River Colne (low)	Screening identified possible impacts on: Angling - River Holme (low) Angling - River Colne (low)	Screening identified possible impacts on: Angling - River Ryburn (low)	Screening identified possible impacts on: Angling - River Ryburn (low)	Screening identified possible impacts on: Angling - River Ryburn (low) Other Watersports (canoeing) - River Ryburn (low)
Reach 1, Reach 2 and Reach 3: Impacts on macroinvertebrates would be moderate and fish would be major. The impacts would not be associated with WFD deterioration based on the criteria outlined in the Environmental Assessment Report. Reach 3 and Reach 4: Impacts on macroinvertebrates would be moderate and fish would be major. The impacts would not be associated with WFD deterioration based on the criteria outlined in the Environmental Assessment Report. Reach 5: Impacts on macroinvertebrates would be moderate and fish would be major. The impacts would not be associated with WFD deterioration based on the criteria outlined in the Environmental Assessment Report. Reach 6: Impacts on macroinvertebrates would be minor and fish would be moderate. The impacts would not be associated with WFD deterioration based on the criteria outlined in the Environmental Assessment Report.	Reach 1, Reach 2 and Reach 3: Impacts on macroinvertebrates would be moderate and fish would be major. The impacts would not be associated with WFD deterioration based on the criteria outlined in the Environmental Assessment Report. Reach 3 and Reach 4: Impacts on macroinvertebrates would be moderate and fish would be major. The impacts would not be associated with WFD deterioration based on the criteria outlined in the Environmental Assessment Report. Reach 5: Impacts on macroinvertebrates would be moderate and fish would be major. The impacts would not be associated with WFD deterioration based on the criteria outlined in the Environmental Assessment Report. Reach 6: Impacts on macroinvertebrates would be minor and fish would be moderate. The impacts would not be associated with WFD deterioration based on the criteria outlined in the Environmental Assessment Report.	Reach 1: Impacts on macroinvertebrates and fish would be major. The impacts would not be associated with WFD deterioration based on the criteria outlined int he Environmental Assessment Report. Reach 2: Impacts on fish and macroinvertebrates would be minor. The impacts would not be associated with WFD deterioration based on the criteria outlined in the Environmental Assessment Report.	Reach 1: Impacts on fish and macroinvertebrates would be moderate. The impacts would not be associated with WFD deterioration based on the criteria outlined in the Environmental Assessment Report. Reach 2: Impacts on fish and macroinvertebrates would be major. The impacts would not be associated with WFD deterioration based on the criteria outlined in the Environmental Assessment Report. Reach 3: Impacts on fish and macroinvertebrates would be minor. The impacts would not be associated with WFD deterioration based on the criteria outlined in the Environmental Assessment Report.	Reach 1: Impacts on macroinvertebrates and fish would be major. The impacts would not be associated with WFD deterioration based on the criteria outlined in the Environmental Assessment Report. Reach 2: Impacts on macroinvertebrates and fish would be major. The impacts would not be associated with WFD deterioration based on the criteria outlined int he Environmental Assessment Report. Reach 3: Impacts on fish and macroinvertebrates would be minor. The impacts would not be associated with WFD deterioration based on the criteria outlined in the Environmental Assessment Report.

South West Area Reservoir 11	**South West Area Reservoir 12**	**South West Area Reservoir 13**	**South West Area Reservoir 14**	**South West Area Reservoir 15**
Triggers – Risk of shortage of supply established: 1.Regional Stocks <Normal Control Line and approaching Drought Control Line (within 1-2 weeks) 2.Regional Stocks have crossed Drought Control Line and remained below for more than 4 weeks	Triggers – Risk of shortage of supply established: 1.Regional Stocks <Normal Control Line and approaching Drought Control Line (within 1-2 weeks) 2.Regional Stocks have crossed Drought Control Line and remained below for more than 4 weeks	Triggers – Risk of shortage of supply established: 1.Regional Stocks <Normal Control Line and approaching Drought Control Line (within 1-2 weeks) 2.Regional Stocks have crossed Drought Control Line and remained below for more than 4 weeks	Triggers – Risk of shortage of supply established: 1.Regional Stocks <Normal Control Line and approaching Drought Control Line (within 1-2 weeks) 2.Regional Stocks have crossed Drought Control Line and remained below for more than 4 weeks	Triggers – Risk of shortage of supply established: 1.Regional Stocks <Normal Control Line and approaching Drought Control Line (within 1-2 weeks) 2.Regional Stocks have crossed Drought Control Line and remained below for more than 4 weeks
Permit	Permit	Permit	Permit	Permit
Normal compensation release 6.819 Ml/d (defined in Act as 1,500,000 gallons/day if abstracting)	Compensation release of 2.637 Ml/d (defined in Act as 580,000 gallons per day)	Compensation release of 3.491 Ml/d (defined in Act ass 768,000 gallons/day continuous)	Compensation release of 1.364 Ml/d (defined in Act as 300,000 gallons/day continuous)	Current compensation release is 8.068 Ml/d under an "enforcement position" agreed with the Environment Agency; (statutory requirement is 2,000 galls/minute between 06:00 & 18:00. 465 galls/minute between 18:00 & 06:00)
Compensation release reduced by 50% to 3.41 Ml/d providing 3.41 Ml/d benefit (release only required if abstracting)	Compensation release reduced by 50% to 1.32 Ml/d providing 1.32 Ml/d benefit	Compensation release reduced by 50% to 1.75 Ml/d providing 1.75 Ml/d benefit	Compensation release reduced by 50% to 0.68 Ml/d providing 0.68 Ml/d benefit	Current compensation release reduced by 50% to 4.03 Ml/d providing 4.04 Ml/d benefit Permit application would request a temporary change to the statutory requirement to a release half the current operating volume
Compensation release reduced by 67% to 2.27 Ml/d providing 4.55 Ml/d benefit (release only required if abstracting)	Compensation release reduced by 67% to 0.88 Ml/d providing 1.76 Ml/d benefit	Compensation release reduced by 67% to 1.16 Ml/d providing 2.33 Ml/d benefit	Compensation release reduced by 67% to 0.45 Ml/d providing 0.91 Ml/d benefit	Current compensation release reduced by 67% to 2.69 Ml/d providing 5.38 Ml/d benefit Permit application would request a temporary change to the statutory requirement to release a third of the current operating volume
Preparation time: 4 weeks prior to advertising, implementation period 5-6 weeks (advertisement, representation, enquiry, granting) Time of year effective: implemented when reservoir stocks approach drought control line so could be effective any time of year. Compensation release reductions may be phased to minimise effect on downstream watercourses. Duration: Minimum period of restriction typically 12 weeks		Preparation time: 4 weeks prior to advertising, implementation period 5-6 weeks (advertisement, representation, enquiry, granting) Time of year effective: implemented when reservoir stocks approach drought control line so could be effective any time of year. Compensation release reductions may be phased to minimise effect on downstream watercourses. Duration: Minimum period of restriction typically 12 weeks		
Permission from Defra or the Environment Agency required following application of a drought order or permit. A public enquiry may be required. Liaise with Environment Agency.		Permission from Defra or the Environment Agency required following application of a drought order or permit. A public enquiry may be required. Liaise with Environment Agency.		
Reduction in compensation releases / maintained flows have potential environmental impacts. These will be assessed through the Environmental Assessment Report submitted with the application.		Reduction in compensation releases / maintained flows have potential environmental impacts. These will be assessed through the Environmental Assessment Report submitted with the application.		
Hydrological and water quality assessment identified a zone of impact of the drought option of: Turvin Clough, Cragg Brook and River Calder. The assessment concluded that there would be Major impacts on hydrology (river flow and level) and a Moderate risk to water quality associated with this option.	Hydrological and water quality assessment identified a zone of impact of the drought option of: Withens Clough, Cragg Brook and River Calder. The assessment concluded that there would be Major impacts on hydrology (river flow and level) and a Moderate risk to water quality associated with this option.	Hydrological and water quality assessment identified a zone of impact of the drought option of: Black Brook and River Calder. The assessment concluded that there would be Major impacts on hydrology (river flow and level) and a Moderate to water quality associated with this option.	Hydrological and water quality assessment identified a zone of impact of the drought option of: Bradshaw Clough. The assessment concluded that there would be Major impacts on hydrology (river flow and level) and a Minor risk to water quality associated with this option.	Hydrological and water quality assessment identified a zone of impact of the drought option of: River Colne and River Calder. The assessment concluded that there would be Major impacts on hydrology (river flow and level) and a Moderate risk to water quality associated with this option.
Environmental assessment has identified potential environmental sensitivities (prior to mitigation) within the zone of influence to: NERC and Notable Fish –numerous (Minor to Major) White-clawed crayfish (Moderate) Water Vole (Moderate) WFD compliance Macroinvertebrates (Moderate) Fish (Major)	Environmental assessment has identified potential environmental sensitivities (prior to mitigation) within the zone of influence to: White-clawed crayfish (Moderate) Water vole (Moderate) NERC and Notable Fish – numerous (Minor to Moderate) WFD compliance Macroinvertebrates (Moderate) Fish (Moderate)	Environmental assessment has identified potential environmental sensitivities (prior to mitigation) within the zone of influence to: White-clawed crayfish (Moderate) Water vole (Major) NERC and Notable Fish – numerous (Minor to Major) WFD compliance Macroinvertebrates (Moderate) Fish (Major)	Environmental assessment has identified potential environmental sensitivities (prior to mitigation) within the zone of influence to: White-clawed crayfish (Moderate) Water vole (Moderate) WFD compliance: Macroinvertebrates (Moderate) and Fish (N/A)	Environmental assessment has identified potential environmental sensitivities (prior to mitigation) within the zone of influence to: NERC and Notable Fish – numerous (Minor to Major) Water vole (Moderate) White-clawed crayfish (Moderate) Potamophylax rotundipennis (Moderate) WFD Compliance Fish (Major) Macroinvertebrates (Moderate)Cromwell Bottom LNR/ LWS (Moderate), Southern Washlands LNR (Minor), Hortbury Lagoons (Minor) & Altoft Ings (Minor).
Environmental assessment used YWS and EA data and information on: reservoir management, measured reservoir outflow, water resource modelling of outflow in critical drought years, gauged river flows and levels; routine WFD water quality monitoring, water quality and flow pressures (abstraction licence and discharge consent registers), YWS STW information; macroinvertebrate sampling data and LIFE, WHPTNATXA and WHPTASPT EQI scores, fish abundances from monitoring surveys, Fisheries Classification Scheme (2) data and publicly available data on designated sites, distributions of NERC Act Section 41 priority species, distribution of Invasive and Non-Native Species and recreational resources, in addition to local EA / YWS knowledge.		Environmental assessment used YWS and EA data and information on: reservoir management, measured reservoir outflow, water resource modelling of outflow in critical drought years, gauged river flows and levels; routine WFD water quality monitoring, water quality and flow pressures (abstraction licence and discharge consent registers), YWS STW information; macroinvertebrate sampling data and LIFE, WHPTNATXA and WHPTASPT EQI scores, fish abundances from monitoring surveys, Fisheries Classification Scheme (2) data and publicly available data on designated sites, distributions of NERC Act Section 41 priority species, distribution of Invasive and Non-Native Species and recreational resources, in addition to local EA / YWS knowledge.		
Details of additional baseline monitoring requirements, are incorporated within the Environmental Monitoring Plan, listing the features to be monitored and methods used; location, timing and frequency of surveys; and who will undertake the monitoring.		Details of additional baseline monitoring requirements, are incorporated within the Environmental Monitoring Plan, listing the features to be monitored and methods used; location, timing and frequency of surveys; and who will undertake the monitoring.		
Mitigation measures and accompanying monitoring have been identified for serious impacts of the drought option (features of moderate and major sensitivities, and minor sensitivities to designated sites - as listed above) through discussion with the EA. Details are incorporated within the Environmental Monitoring Plan		Mitigation measures and accompanying monitoring have been identified for serious impacts of the drought option (features of moderate and major sensitivities, and minor sensitivities to designated sites - as listed above) through discussion with the EA. Details are incorporated within the Environmental Monitoring Plan		
Screening identified possible impacts on: Angling - Cragg Brook (low)	Screening identified possible impacts on: Angling - Cragg Brook (low)	Screening identified possible impacts on: Angling - Black Brook (low)	Screening identified no further impacts.	Screening identified possible impacts on: Angling - River Colne (low)
Reach 1 and Reach 2: Impacts on macroinvertebrates would be moderate and fish would be major. The impacts would not be associated with WFD deterioration based on the criteria outlined in the Environmental Assessment Report. Reach 3: Impacts on fish and macroinvertebrates would be minor. The impacts would not be associated with WFD deterioration based on the criteria outlined in the Environmental Assessment Report.	Reach 1 and Reach 2: Impacts on macroinvertebrates and fish would be moderate. The impacts would not be associated with WFD deterioration based on the criteria outlined in the Environmental Assessment Report. Reach 3: Impacts on fish and macroinvertebrates would be minor. The impacts would not be associated with WFD deterioration based on the criteria outlined in the Environmental Assessment Report.	Reach 1: Impacts on fish would be major and impacts on macroinvertebrates would be moderate. The impacts would not be associated with WFD deterioration based on the criteria outlined in the Environmental Assessment Report. Reach 2: Impacts on macroinvertebrates would be minor and fish would be moderate. The impacts would not be associated with WFD deterioration based on the criteria outlined in the Environmental Assessment Report.	Reach 1: Impacts on macroinvertebrates would be moderate. Impact on fish would be N/A. The impacts would not associate with WFD deterioration based on the criteria outlined in the Environmental Assessment Report.	Reach 1: Impacts on macroinvertebrates would be moderate. Impacts on fish are N/A. The impacts would not be associated with WFD deterioration based on the criteria outlined in the Environmental Assessment Report. Reaches 2 and 3: Impacts on macroinvertebrates would be moderate and for fish would be major. The impacts would not be associated with WFD deterioration based on the criteria outlined in the Environmental Assessment Report. Reach 4: Impacts on fish would be major and macroinvertebrates would be moderate. The impacts would not be associated with WFD deterioration based on the criteria outlined in the Environmental Assessment Report. Reach 5: Impacts on macroinvertebrates would be minor and fish would be moderate. The impacts would not be associated with WFD deterioration based on the criteria outlined in the Environmental Assessment Report.

South West Area Reservoir 16	South West Area Reservoir 17	South West Area Reservoir 18
Triggers – Risk of shortage of supply established: 1.Regional Stocks <Normal Control Line and approaching Drought Control Line (within 1-2 weeks) 2.Regional Stocks have crossed Drought Control Line and remained below for more than 4 weeks	Triggers – Risk of shortage of supply established: 1.Regional Stocks <Normal Control Line and approaching Drought Control Line (within 1-2 weeks) 2.Regional Stocks have crossed Drought Control Line and remained below for more than 4 weeks	Triggers – Risk of shortage of supply established: 1.Regional Stocks <Normal Control Line and approaching Drought Control Line (within 1-2 weeks) 2.Regional Stocks have crossed Drought Control Line and remained below for more than 4 weeks
Permit	Permit	Permit
Maintained flow requirement of 7.274Ml/d (defined in the Act as 1,600,000 gallons/day maintained flow)	Current compensation release is 2.668 Ml/d under an "enforcement position" agreed with the Environment Agency (the statutory requirement is 951 galls/minute between 06:00 & 18:00 Mon – Sat)	Current compensation release is 0.612 Ml/d under an "enforcement position" agreed with the Environment Agency (the statutory requirement is 156,960 gallons/day, 6/7 between 06:00 & 18:00 Mon - Sat and 1/7 between 18:00 & 06:00 Mon – Sat)
Compensation release reduced by 50% to 3.64 Ml/d providing 3.64 Ml/d benefit	Current compensation release reduced by 50% to 1.33 Ml/d providing 1.34 Ml/d benefit Permit application would request a temporary change to the statutory requirement to a release half the current operating volume	Current compensation release reduced to 0.31 Ml/d providing 0.30 Ml/d benefit Permit application would request a temporary change to the statutory requirement to a release half the current operating volume
Compensation release reduced by 67% to 2.42 Ml/d providing 4.85 Ml/d benefit	Compensation release reduced by 67% to 0.89 Ml/d providing 1.78 Ml/d benefit Permit application would request a temporary change to the statutory requirement to a release one third the current operating volume	Current compensation release reduced to 0.20 Ml/d providing 0.41 Ml/d benefit Permit application would request a temporary change to the statutory requirement to a release one third the current operating volume
Preparation time: 4 weeks prior to advertising, implementation period 5-6 weeks (advertisement, representation, enquiry, granting) Time of year effective: implemented when reservoir stocks approach drought control line so could be effective any time of year. Compensation release reductions may be phased to minimise effect on downstream watercourses. Duration: Minimum period of restriction typically 12 weeks		
Permission from Defra or the Environment Agency required following application of a drought order or permit. A public enquiry may be required. Liaise with Environment Agency.		
Reduction in compensation releases / maintained flows have potential environmental impacts. These will be assessed through the Environmental Assessment Report submitted with the application.		
Hydrological and water quality assessment identified a zone of impact of the drought option of: River Colne and River Calder. The assessment concluded that there would be Major impacts on hydrology (river flow and level) and a Moderate risk to water quality associated with this option.	Hydrological and water quality assessment identified a zone of impact of the drought option of: Mag Brook, River Holme, River Colne and River Calder. The assessment concluded that there would be Major impacts on hydrology (river flow and level) and a Moderate risk to water quality associated with this option.	Hydrological and water quality assessment identified a zone of impact of the drought option of: Hoyle House Clough, River Colne and River Calder. The assessment concluded that there would be Major impacts on hydrology (river flow and level) and a Moderate risk to water quality associated with this option.
Environmental assessment has identified potential environmental sensitivities (prior to mitigation) within the zone of influence to: NERC and Notable Fish – numerous (Minor to Major) White-clawed crayfish (Moderate) Water vole (Moderate) Potamophylax rotundipennis (Moderate) WFD Compliance Fish (Major) Macroinvertebrates (Moderate) Macroinvertebrates (Moderate) Cromwell Bottom LNR/ LWS (Moderate), Southern Washlands LNR (Minor), Hortbury Lagoons (Minor) & Altoft Ings (Minor).	Environmental assessment has identified potential environmental sensitivities (prior to mitigation) within the zone of influence to: NERC and Notable Fish – numerous (Minor to Major) White-clawed crayfish (Moderate) Water vole (Moderate) Potamophylax rotundipennis (Moderate) WFD Compliance Fish (Major) Invertebrates (Moderate) Cromwell Bottom LNR/ LWS (Moderate), Southern Washlands LNR (Minor), Hortbury Lagoons (Minor) & Altoft Ings (Minor).	Environmental assessment has identified potential environmental sensitivities (prior to mitigation) within the zone of influence to: White-clawed crayfish (Moderate) Water vole (Moderate) NERC and Notable Fish – numerous (Minor to Major) Potamophylax rotundipennis (Moderate) WFD compliance Macroinvertebrates (Moderate) Fish (Major) Cromwell Bottom LNR/ LWS (Moderate), Southern Washlands LNR (Minor), Hortbury Lagoons (Minor) & Altoft Ings (Minor).
Environmental assessment used YWS and EA data and information on: reservoir management, measured reservoir outflow, water resource modelling of outflow in critical drought years, gauged river flows and levels; routine WFD water quality monitoring, water quality and flow pressures (abstraction licence and discharge consent registers), YWS STW information; macroinvertebrate sampling data and LIFE, WHPTNATXA and WHPTASPT EQI scores, fish abundances from monitoring surveys, Fisheries Classification Scheme (2) data and publicly available data on designated sites, distributions of NERC Act Section 41 priority species, distribution of Invasive and Non-Native Species and recreational resources, in addition to local EA / YWS knowledge.		
Details of additional baseline monitoring requirements, are incorporated within the Environmental Monitoring Plan, listing the features to be monitored and methods used; location, timing and frequency of surveys; and who will undertake the monitoring.		
Mitigation measures and accompanying monitoring have been identified for serious impacts of the drought option (features of moderate and major sensitivities, and minor sensitivities to designated sites - as listed above) through discussion with the EA. Details are incorporated within the Environmental Monitoring Plan		
Screening identified possible impacts on: Angling - River Colne (low)	Screening identified possible impacts on: Angling -Brow Grains Dyke (low) Crosland Lower Hall Moated Site Scheduled monuments (low) Angling - River Holme (low) Angling - River Colne (low)	Screening identified possible impacts on: Angling - River Colne (low)
Reach 1: Impacts on fish would be major and for macroinvertebrates would be moderate. The impacts would not be associated with WFD deterioration based on the criteria outlined in the Environmental Assessment Report. Reaches 2 and 3: Impacts on fish would be major and for macroinvertebrates would be moderate. The impacts would not be associated with WFD deterioration based on the criteria outlined in the Environmental Assessment Report. Reach 4: Impacts on fish would be major and macroinvertebrates would be moderate. The impacts would not be associated with WFD deterioration based on the criteria outlined in the Environmental Assessment Report. Reach 5: Impacts on macroinvertebrates would be minor and fish would be moderate. The impacts would not be associated with WFD deterioration based on the criteria outlined in the Environmental Assessment Report.	Reach 1: Impacts on macroinvertebrates and fish would be moderate. The impacts would not be associated with WFD deterioration based on the criteria outlined the Environmental Assessment Report. Reach 2: Impacts on macroinvertebrates and would be moderate fish would be major. The impacts would not be associated with WFD deterioration based on the criteria outlined the Environmental Assessment Report. Reach 3: Impacts on macroinvertebrates would be moderate and fish would be major The impacts would not be associated with WFD deterioration based on the criteria outlined the Environmental Assessment Report. Reach 4:. Impacts on macroinvertebrates would be minor and fish would be moderate. The impacts would not be associated with WFD deterioration based on the criteria outlined in the Environmental Assessment Report.	Reaches 1 and 2: Impacts on macroinvertebrates would be moderate and fish would be major. The impacts would not be associated with WFD deterioration based on the criteria outlined in the Environmental Assessment Report. Reach 3: Impacts on macroinvertebrates would be moderate and fish would be major. The impacts would not be associated with WFD deterioration based on the criteria outlined the Environmental Assessment Report. Reach 4: Impacts on macroinvertebrates would be minor and fish would be moderate. The impacts would not be associated with WFD deterioration based on the criteria outlined in the Environmental Assessment Report.

Yorkshire Water Drought Plan supply side options: North West Area Reservoir Group

Type of option: Reservoir group - compensation reduction

Location / Area affected or whole supply zone: Grid SWZ North West Area

Summary description of actions: Compensation flows reduced to half or one third of normal flows to preserve reservoir stocks and extend the period that compensation flows can be maintained. Reductions will be considered on a selective basis as some releases are more critical than others

Preceding actions: Publicity campaign and temporary use bans in force (April to September)

Option name		North West Area Reservoir 1	North West Area Reservoir 2	North West Area Reservoir 3	North West Area Reservoir 4	North West Area Reservoir 5	North West Area Reservoir 6	North West Area Reservoir 7	North West Area Reservoir 8	North West Area Reservoir 11	North West Area Reservoir 9	North West Area Reservoir 10	North West Area Reservoir 12
Trigger(s)		Triggers – Risk of shortage of supply established: 1.Regional Stocks <Normal Control Line and approaching Drought Control Line (within 1-2 weeks) 2.Regional Stocks have crossed Drought Control Line and remained below for more than 4 weeks	Triggers – Risk of shortage of supply established: 1.Regional Stocks <Normal Control Line and approaching Drought Control Line (within 1-2 weeks) 2.Regional Stocks have crossed Drought Control Line and remained below for more than 4 weeks	Triggers – Risk of shortage of supply established: 1.Regional Stocks <Normal Control Line and approaching Drought Control Line (within 1-2 weeks) 2.Regional Stocks have crossed Drought Control Line and remained below for more than 4 weeks	Triggers – Risk of shortage of supply established: 1.Regional Stocks <Normal Control Line and approaching Drought Control Line (within 1-2 weeks) 2.Regional Stocks have crossed Drought Control Line and remained below for more than 4 weeks	Triggers – Risk of shortage of supply established: 1.Regional Stocks <Normal Control Line and approaching Drought Control Line (within 1-2 weeks) 2.Regional Stocks have crossed Drought Control Line and remained below for more than 4 weeks	Triggers – Risk of shortage of supply established: 1.Regional Stocks <Normal Control Line and approaching Drought Control Line (within 1-2 weeks) 2.Regional Stocks have crossed Drought Control Line and remained below for more than 4 weeks	Triggers – Risk of shortage of supply established: 1.Regional Stocks <Normal Control Line and approaching Drought Control Line (within 1-2 weeks) 2.Regional Stocks have crossed Drought Control Line and remained below for more than 4 weeks	Triggers – Risk of shortage of supply established: 1.Regional Stocks <Normal Control Line and approaching Drought Control Line (within 1-2 weeks) 2.Regional Stocks have crossed Drought Control Line and remained below for more than 4 weeks	Triggers – Risk of shortage of supply established: 1.Regional Stocks <Normal Control Line and approaching Drought Control Line (within 1-2 weeks) 2.Regional Stocks have crossed Drought Control Line and remained below for more than 4 weeks	Triggers – Risk of shortage of supply established: 1.Regional Stocks <Normal Control Line and approaching Drought Control Line (within 1-2 weeks) 2.Regional Stocks have crossed Drought Control Line and remained below for more than 4 weeks	Triggers – Risk of shortage of supply established: 1.Regional Stocks <Normal Control Line and approaching Drought Control Line (within 1-2 weeks) 2.Regional Stocks have crossed Drought Control Line and remained below for more than 4 weeks	Triggers – Risk of shortage of supply established: 1.Regional Stocks <Normal Control Line and approaching Drought Control Line (within 1-2 weeks) 2.Regional Stocks have crossed Drought Control Line and remained below for more than 4 weeks
Most likely authorisation in a drought (permit or order)		Permit	Permit	Permit	Permit	Permit	Permit	Permit	Permit	Permit only required if abstracting	Permit	Permit	Permit
Current Legal Requirement (Compensation release, minimum maintained flow or authorised abstraction limit)		Ensure a maintained flow of 6.00 Ml/d when the combined flow from North West Area Reservoirs 2 and 3 is 8.00 Ml/d, or 8.00 Ml/d whenever the combined compensation flow from North West Area Reservoirs 2 and 3 reduces from 8.00 to 6.00 Ml/d	Compensation release of 4.00 Ml/d when North West Area Reservoir 2 is above/below control line and North West Area Reservoir 3 is above control lines defined in the licences Or 5.25 Ml/d when North West Area Reservoir 2 is above its control line and North West Area Reservoir 3 is below its control line Or 3.25 Ml/d when both North West Area Reservoir 2 and North West Area Reservoir 3 are below its control lines	4.00 Ml/d when the reservoir level is above the control line defined in the licence, or 2.750 Ml/d when the reservoir level is below the control line	Compensation flow of 3.60 Ml/d, or 1.80 Ml/d when below control line	Currently operating under an agreement with the Environment Agency to release 6.3 Ml/d (compensation in the authorising Act is at mill owners discretion)	Currently operating under an agreement with the Environment Agency to release 1.00 Ml/d (The authorising Act requires 2/5 of the average daily inflow to the reservoir to be released between 05:00 and 20:00 every day except Sunday, Christmas Day & Good Friday)	Compensation release of 0.791 Ml/d (defined in the Act as 174,000 gallons/day)	Currently operating to release 0.43 Ml/d under agreement with the Environment Agency (the Act requires 110,273 gallons per working day Mon to Sat)	There is no requirement to meet a defined compensation release from this reservoir however, the licence includes a prescribed flow of 2.41 Ml/d whereby no water can be abstracted if the flow exiting the reservoir is below this level. We are not currently abstracting from the reservoir but this Drought Plan includes an option to bring the reservoir into supply.	Compensation release of 1.186 Ml/d (defined in the Act as 261,000 gallons/day)	Compensation releases: 1 Jan to 19 Apr 15.1 Ml/d 20 Apr to 10 May 7.8 Ml/d 11 May to 11 Oct 3.8 Ml/d 12-31 Oct 7.8 Ml/d 1 Nov to 31 Dec 15.1 Ml/d	Compensation release of 0.085 Ml/d (defined in the Act as 18,600 gallons/day)
Deployable Output of action - Variable depending on conditions and duration of drought permit	Action 1 Description	N/A	Reduce the compensation release required by 50% to 2.00 Ml/d when North West Area Reservoir 2 is above or below control line and North West Area Reservoir 3 is above providing a 2.00 Ml/d benefit 2.63 Ml/d when North West Area Reservoir 2 and North West Area Reservoir 3 are above their control lines, providing a 2.63 Ml/d benefit or 1.63 Ml/d when North West Area Reservoir 2 and North West Area Reservoir 3 are below their control lines, providing a 1.63 Ml/d benefit	Compensation release reduced by 50% to 2.00 Ml/d providing a benefit of 2.00 Ml/d or 1.38 Ml/d proving a benefit of 1.38 Ml/d depending on whether North West Reservoir 3 is above or below its control line	Compensation release reduced by 50% to 1.80 Ml/d when above control line providing a benefit of 1.80 l/d, or 0.90 Ml/d when below control line, providing a benefit of 0.90 Ml/d	Current compensation release reduced by 50% to 3.15 Ml/d providing a 3.15 Ml/d benefit	Current compensation release reduced by 50% to 0.50 Ml/d providing 0.50 Ml/d benefit	Compensation release reduced by 50% to 0.40 Ml/d providing 0.40 Ml/d benefit	Current compensation release reduced by 50% to 0.22 Ml/d providing 0.22 Ml/d benefit	Reduce the prescribed flow by 50% to 1.21 Ml/d providing 1.21 Ml/d benefit. This option is only relevant if we implement the option to put the reservoir back into supply.	Compensation released reduced by 50% to 0.60 Ml/d providing 0.60 Ml/d benefit	Compensation releases reduced by 50% to; 1 Jan to 19 Apr 7.55 Ml/d providing a 7.55 Ml/d benefit 20 Apr to 10 May 3.90 Ml/providing a 3.90 Ml/d benefit 11 May to 11 Oct 1.90 Ml/providing a 1.90 Ml/d benefit 12-31 Oct 3.90 Ml/d providing a 3.90 Ml/d benefit 1 Nov to 31 Dec 7.55 Ml/d providing a 7.55 Ml/d benefit	Compensation released reduced by 50% to 0.0425Ml/d providing 0.0425 Ml/d benefit
	Action 2 Description	Reduce compensation release to: 2.00 Ml/d if North West Area Reservoir 2 and North West Area Reservoir 3 are above their control lines or 2.67 Ml/d if North West Area Reservoir 2 and North West Area Reservoir 3 are below their control lines	Reduce compensation release by 67% to: 1.75 Ml/d when North West Area Reservoir 2 and North West Area Reservoir 3 are above their control lines, providing a benefit of 3.50 Ml/d or 1.08 Ml/d when North West Area Reservoir 2 and North West Area Reservoir 3 are below their control lines, providing a benefit of 2.17 Ml/d	Compensation release reduced by 67% to 1.33 Ml/d providing a benefit of 2.67 Ml/d or 0.92 Ml/d proving a benefit of 1.83 Ml/d depending on whether North West Reservoir 3 is above or below its control line	Current compensation release reduced by 67% to 1.20 Ml/d providing a 2.40 Ml/d benefit when above control line, or 0.60 Ml/d providing a 1.20 Ml/d benefit when below control line	Current compensation release reduced by 67% to 2.10 Ml/d providing a 4.20 Ml/d benefit	Current compensation release reduced by 67% to 0.33 Ml/d providing 0.67 Ml/d benefit	Compensation release reduced by 67% to 0.26 Ml/d providing 0.53 Ml/d benefit	Current compensation release reduced by 67% to 0.14 Ml/d providing 0.29 Ml/d benefit	Reduce the prescribed flow by 67% to 0.80 Ml/d providing 1.61 Ml/d benefit. This option is only relevant if we implement the option to put the reservoir back into supply.	Compensation release reduced by 67% to 0.40 Ml/d providing 0.79 Ml/d benefit	Compensation releases reduced by 67% to; 1 Jan to 19 Apr 5.03 Ml/d providing a 10.07 Ml/d benefit 20 Apr to 10 May 2.60 Ml/providing a 5.20 Ml/d benefit 11 May to 11 Oct 1.27 Ml/providing a 2.53 Ml/d benefit 12-31 Oct 2.60 Ml/d providing a 5.20 Ml/d benefit 1 Nov to 31 Dec 45.03 Ml/d providing a 10.07 Ml/d benefit	Compensation release reduced by 67% to 0.028 Ml/d providing 0.057 Ml/d benefit
Implementation timetable Preparation time, time of year effective, duration		Preparation time: 4 weeks prior to advertising, implementation period 5-6 weeks (advertisement, representation, enquiry, granting) Time of year effective: implemented when reservoir stocks approach drought control line so could be effective any time of year. Compensation release reductions may be phased to minimise effect on downstream watercourses. Duration: Minimum period of restriction typically 12 weeks											
Permissions required and constraints Including details of liaison with bodies responsible for giving any permits or approvals		Permission from Defra or the Environment Agency required following application of a drought order or permit. A public enquiry may be required. Liaise with Environment Agency.											
Risks associated with option		Reduction in compensation releases / maintained flows have potential environmental impacts. These will be assessed through the Environmental Assessment Report submitted with the application.											
Risk to the Environment (Major/Moderate/Minor or uncertain)		Hydrological and water quality assessment identified a zone of impact of the drought option of: River Worth and River Aire. The assessment concluded that there would be Major impacts on hydrology (river flow and level) and a Moderate risk to water quality associated with this option.	Hydrological and water quality assessment identified a zone of impact of the drought option of: Leeming Water, Bridgehouse Beck, River Worth and River Aire. The assessment concluded that there would be Major impacts on hydrology (river flow and level) and a Moderate risk to water quality associated with this option.	Hydrological and water quality assessment identified a zone of impact of the drought option of: Moorhouse Beck, Bridgehouse Beck, River Worth and River Aire. The assessment concluded that there would be Major impacts on hydrology (river flow and level) and a Moderate risk to water quality associated with this option.	Hydrological and water quality assessment identified a zone of impact of the drought option of: Denholme Beck and Hewenden Beck / Harden Beck. The assessment concluded that there would be Moderate impacts on hydrology (river flow and level) and a Moderate risk to water quality associated with this option.	Hydrological and water quality assessment identified a zone of impact of the drought option of: Hewenden/Harden Beck and River Aire. The assessment concluded that there would be Moderate impacts on hydrology (river flow and level) and a Moderate risk to water quality associated with this option.	Hydrological and water quality assessment identified a zone of impact of the drought option of: Eldwick/ Loadpit Beck. The assessment concluded that there would be Major impacts on hydrology (river flow and level) and a Moderate risk to water quality associated with this option.	Hydrological and water quality assessment identified a zone of impact of the drought option of: Jum Beck. The assessment concluded that there would be Major impacts on hydrology (river flow and level) and a Moderate risk to water quality associated with this option.	Hydrological and water quality assessment identified a zone of impact of the drought option of: Gill Beck. The assessment concluded that there would be Major impacts on hydrology (river flow and level) and a Moderate risk to water quality associated with this option.	Hydrological and water quality assessment identified a zone of impact of the drought option of: Silsden Beck. The assessment concluded that there would be Major impacts on hydrology (river flow and level) and a Minor risk to water quality associated with this option.	Hydrological and water quality assessment identified a zone of impact of the drought option of: Embsay Beck. The assessment concluded that there would be Major impacts on hydrology (river flow and level) and a Moderate risk to water quality associated with this option.	Hydrological and water quality assessment identified a zone of impact of the drought option of: River Dibb. The assessment concluded that there would be Major impacts on hydrology (river flow and level) and a Minor risk to water quality associated with this option.	Hydrological and water quality assessment identified a zone of impact of the drought option of: Carr Beck. The assessment concluded that there would be Major impacts on hydrology (river flow and level) and a Moderate risk to water quality associated with this option.
Summary of likely environmental impacts Include details for features of moderate and major sensitivity and minor sensitivity features from designated sites		Environmental assessment has identified potential environmental sensitivities (prior to mitigation) within the zone of influence to: NERC and Notable Fish – numerous (Moderate to Major) Snipefly *Atherix ibis* (Moderate) WFD compliance Fish (Major) Macroinvertebrates (Moderate) Haworth-Oakworth Disused Sewage Works LWS (Minor)	Environmental assessment has identified potential environmental sensitivities (prior to mitigation) within the zone of influence to: NERC and Notable Fish – numerous (Moderate to Major) White-clawed crayfish (Moderate) WFD compliance Fish (Major) Macroinvertebrate (Moderate) Airedale Spring Mill Pond, Haworth LWS (Minor)	Environmental assessment has identified potential environmental sensitivities (prior to mitigation) within the zone of influence to: NERC and Notable Fish – numerous (Moderate to Major) WFD compliance Fish (Major) Macroinvertebrate (Moderate) Airedale Spring Mill Pond, Haworth LWS (Minor)	Environmental assessment has identified potential environmental sensitivities (prior to mitigation) within the zone of influence to: NERC and Notable Fish – numerous (Moderate) White-clawed crayfish (Moderate) Water Vole (Moderate) Snipefly *Atherix ibis* (Moderate) WFD Compliance Invertebrates (Moderate) Fish (Moderate) Harden Beck LWS (Moderate)	Environmental assessment has identified potential environmental sensitivities (prior to mitigation) within the zone of influence to: NERC and Notable Fish – numerous (Moderate) White-clawed crayfish (Moderate) Water vole (Moderate) Snipefly Atherix ibis (Moderate) WFD Compliance Invertebrates (Moderate) Fish (Moderate)	Environmental assessment has identified potential environmental sensitivities (prior to mitigation) within the zone of influence to: NERC and Notable Fish – numerous (Moderate to Major) WFD compliance Fish (Major) Macroinvertebrates (Moderate)	Environmental assessment has identified potential environmental sensitivities (prior to mitigation) within the zone of influence to: NERC and Notable Fish – brown trout (Minor) and Meniscus Midge *Dixa maculata* (Moderate) WFD compliance Fish (Moderate) Macroinvertebrates (Moderate)	Environmental assessment has identified potential environmental sensitivities (prior to mitigation) within the zone of influence to: NERC and Notable Fish – numerous (Major to Moderate) White-clawed crayfish (Major) Snipefly *Atherix ibis* (Moderate) Meniscus Midge *Dixa maculata* (Moderate) WFD compliance Macroinvertebrates (Moderate) Fish (Major) Tong Park LWS (Minor)	Environmental assessment has identified potential environmental sensitivities (prior to mitigation) within the zone of influence to: NERC and Notable Fish– numerous (Moderate to Major) Snipefly *Atherix ibis* (Moderate) WFD compliance Macroinvertebrates (Moderate) Fish (Minor)	Environmental assessment has identified potential environmental sensitivities (prior to mitigation) within the zone of influence to: NERC and Notable Fish – numerous (Major to Moderate) White-clawed crayfish (Major) Water Vole (Moderate) Snipefly *Atherix ibis* (Moderate) Riffle Beetle *Riolus subviolaceus* (Moderate) WFD compliance Fish (Major) Invertebrates (Moderate)	Environmental assessment has identified potential environmental sensitivities (prior to mitigation) within the zone of influence to: NERC and Notable Fish – numerous (Major to Moderate) White-clawed crayfish (Major) WFD compliance Fish (Major) Macroinvertebrates (Moderate)	Environmental assessment has identified potential environmental sensitivities (prior to mitigation) within the zone of influence to: NERC and Notable Fish – numerous (Major to Moderate) WFD compliance Fish (Major) Macroinvertebrates (Moderate) Haworth-Oakworth Disused Sewage Works LWS (Minor)
Baseline information used		Environmental assessment used YWS and EA data and information on: reservoir management, measured reservoir outflow, water resource modelling of outflow in critical drought years, gauged river flows and levels; routine WFD water quality monitoring, water quality and flow pressures (abstraction licence and discharge consent registers), YWS STW information; macroinvertebrate sampling data and LIFE, WHPTNATXA and WHPTASPT EQI scores, fish abundances from monitoring surveys, Fisheries Classification Scheme (2) data and publicly available data on designated sites, distributions of NERC Act Section 41 priority species, distribution of Invasive and Non-Native Species and recreational resources, in addition to local EA / YWS knowledge.											
Summary of additional baseline monitoring requirements		Details of additional baseline monitoring requirements, are incorporated within the Environmental Monitoring Plan, listing the features to be monitored and methods used; location, timing and frequency of surveys; and who will undertake the monitoring.											
Mitigation measures		Mitigation measures and accompanying monitoring have been identified for serious impacts of the drought option (features of moderate and major sensitivities, and minor sensitivities to designated sites - as listed above) through discussion with the EA. Details are incorporated within the Environmental Monitoring Plan											
Impact on other activities e.g. fisheries, industry etc		Screening identified possible impacts on: Angling - Silsden Beck (low)	Screening identified possible impacts on: Angling - River Worth (low)	Screening identified possible impacts on: Angling - River Worth & River Aire (low)	Screening identified possible impacts on: Angling - Harden Beck (low)	Screening identified possible impacts on: Angling - Harden Beck (low)	Screening identified possible impacts on: Angling - River Aire (low)	Screening identified possible impacts on: Angling - Jum Beck (low)	Screening identified possible impacts on: Angling - Gill Beck (low)	Screening identified possible impacts on: Angling - Silsden Beck (low)	Screening identified possible impacts on: Angling (uncertain sensitivity)	Screening identified possible impacts on: Angling - River Dibb & Barben Beck (low)	Screening identified no further impacts.
WFD Compliance		Reach 1: Impacts on macroinvertebrates would be moderate and fish would be major. The impacts would not be associated with WFD deterioration based on the criteria outlined in the Environmental Assessment Report. Reach 2: Impacts on fish would be major and for macroinvertebrates would be moderate. The impacts would not be associated with WFD deterioration based on the criteria outlined in the Environmental Assessment Report. Reach 3: Impacts on fish would be moderate in summer and minor in winter and for macroinvertebrates would be minor. The impacts would not be associated with WFD deterioration based on the criteria outlined in the Environmental Assessment Report. Reach 4: Impacts on fish and macroinvertebrates would be moderate in summer and minor in winter. The impacts would not be associated with WFD deterioration based on the criteria outlined in the Environmental Assessment Report.	Reach 1 and Reach 2: Impacts on macroinvertebrates would be moderate. Impacts on fish would be major. The impacts would not be associated with WFD deterioration based on the criteria outlined in the Environmental Assessment Report. Reach 3: Impacts on fish would be major and for macroinvertebrates would be moderate. The impacts would not be associated with WFD deterioration based on the criteria outlined in the Environmental Assessment Report. Reach 4: Impacts on fish would be moderate in summer and minor in winter and for macroinvertebrates would be minor. The impacts would not be associated with WFD deterioration based on the criteria outlined in the Environmental Assessment Report. Reach 5: Impacts on fish and macroinvertebrates would be moderate in summer and minor in winter. The impacts would not be associated with WFD deterioration based on the criteria outlined in the Environmental Assessment Report.	Reach 1 and Reach 2: Impacts on macroinvertebrates and fish would be moderate. The impacts would not be associated with WFD deterioration based on the criteria outlined in the Environmental Assessment Report. Reach 3: Impacts on fish would be major and for macroinvertebrates would be moderate. The impacts would not be associated with WFD deterioration based on the criteria outlined in the Environmental Assessment Report. Reach 4: Impacts on fish would be moderate in summer and minor in winter and for macroinvertebrates would be minor. The impacts would not be associated with WFD deterioration based on the criteria outlined in the Environmental Assessment Report. Reach 5: Impacts on fish and macroinvertebrates would be moderate in summer and minor in winter. The impacts would not be associated with WFD deterioration based on the criteria outlined in the Environmental Assessment Report.	Reach 1 and Reach 2: Impacts on macroinvertebrates and fish would be moderate. The impacts would not be associated with WFD deterioration based on the criteria outlined in the Environmental Assessment Report.	Reach 1: Impacts on macroinvertebrates and fish would be moderate. The impacts would not be associated with WFD deterioration based on the criteria outlined in the Environmental Assessment Report.	Reach 1: Impacts on macroinvertebrates would be moderate and fish would be major. The impacts would not be associated with WFD deterioration based on the criteria outlined in the Environmental Assessment Report.	Reach 1: Impacts on macroinvertebrates and fish would be moderate The impacts would not be associated with WFD deterioration based on the criteria outlined in the Environmental Assessment Report.	Reach 1 and Reach 2: Impacts on macroinvertebrates would be moderate and fish would be major. The impacts would not be associated with WFD deterioration based on the criteria outlined in the Environmental Assessment Report.	Reach 1: Impacts on fish would be minor and for macroinvertebrates they would be moderate The impacts would not be associated with WFD deterioration based on the criteria outlined in the Environmental Assessment Report.	Reach 1: Impacts on macroinvertebrates would be moderate. Impacts on fish would be major. The impacts would not be associated with WFD deterioration based on the criteria outlined in the Environmental Assessment Report. Reach 2: Impacts on macroinvertebrates and fish would be moderate. The impacts would not be associated with WFD deterioration based on the criteria outlined in the Environmental Assessment Report.	Reach 1: Impacts on fish would be major and impacts on invertebrates would be moderate. The impacts would not be associated with WFD deterioration based on the criteria outlined in the Environmental Assessment Report.	Reach 1: Impacts on fish would be major and impacts on invertebrates would be moderate. The impacts would not be associated with WFD deterioration based on the criteria outlined in the Environmental Assessment Report.

Yorkshire Water Drought Plan supply side options: River options
Type of option: **River abstraction changes**
Location / Area affected or whole supply zone: **Grid SWZ**
Summary description of actions: **Temporary increase abstraction limits or alter river abstraction to provide more water for supply to customers**
Preceding actions: **Publicity campaign and temporary use bans in force (April to September)**

Option name	Ouse increased abstraction	Ure increased abstraction	Wharfe reduced regulated flow
Trigger(s)	Preceding actions: Publicity campaign and temporary use bans in force (April – September only) Triggers: Risk of shortage of supply established	Preceding actions: Publicity campaign and temporary use bans in force (April – September only) Triggers: Risk of shortage of supply established	Preceding actions: Publicity campaign and temporary use bans in force (April – September only) Triggers: Risk of shortage of supply established
Most likely authorisation in a drought (permit or order)	Order	Permit	Permit
Current Legal Requirement (Compensation release, minimum maintained flow or authorised abstraction limit)	• 300Ml/d when flows in Ouse (measured at a monitoring station downstream) are more tha 1,000Ml/d •150Ml/d when flows in Ouse are between 650 and 1,000Ml/d •72Ml/d when flows in the Ouse are between 400 and 650Ml/d •10Ml/d when flows in the Ouse are less than 400Ml/d	• 46Ml/d when flows in Ure (measured at an upstream monitoring station gauge) are more tha 300Ml/d •22.70Ml/d when flows in Ure are between 163 and 300Ml/d •3.27Ml/d when flows in the Ure are between 50 and 163Ml/d •0Ml/d when flows in the Ure are less than 50Ml/d	88.6Ml/d may be abstracted from the River Wharfe to the following conditions: • When flow in the Wharfeis less than 252Ml/d YWS must release the amount abstracted from the Wharfe plus an additional 22.7Ml/d • When flow in the Wharfe is between 252Ml/d and 389Ml/d YWS must release the amour abstracted from the Wharfe less 6.8Ml/d • When flow in the Wharfe is between 389Ml/d and 488Ml/d YWS may abstract up to 88.6Ml/ (North West Area Reservoir 11 releases not required) • When flow in the Wharfe is above 488Ml/d YWS may abstract up to 93.2Ml/d (North West Are Reservoir 11 releases not required) Abstraction limits on the Wharfe 5,060 cubic metres per hour, 93,200 cubic metres per day, 27,392,000 cubic metres per year and at an instantaneous rate not exceeding 1,406 litres per second
Deployable Output of action - Variable depending on conditions and duration of drought permit	Up to 60 Ml/d	Up to 3.27 (when flows are less than 50Ml/d)	Up to 22.70 (when flows are less than 252Ml/d)
Action Description	Increase allowed abstraction in all but the highest flow band. This allows increased river abstractions, and protects reservoir stocks, allowing storage to be maximised during a drought. • 300Ml/d when flows in Ouse (measured at a monitoring station downstream) are more tha 1,000Ml/d (No change) •210Ml/d when flows in Ouse are between 650 and 1,000Ml/d (increase of 60Ml/d) •132Ml/d when flows in the Ouse are between 400 and 650Ml/d (increase of 60Ml/d) •70Ml/d when flows in the Ouse are less than 400Ml/d (increase of 60Ml/d)	River Ure increased abstraction - Increase allowed abstraction in the lowest flow band. This allows increased river abstractions, and protects reservoir stocks, allowing storage to be maximised during a drought. •46Ml/d when flows in Ure are more than 300Ml/d (NO CHANGE) •22.7Ml/d when flows in Ure are between 163 and 300Ml/d (NO CHANGE) •3.27Ml/d when flows in the Ure are between 50 and 163Ml/d (NO CHANGE) •3.27Ml/d when flows in the Ure are less than 50Ml/d (increase from 0 to 3.27Ml/d)	Reduce required North West Area Reservoir 11 support in the lowest flow band from 22.7Ml/d more than abstraction, to an amount equal to abstraction. This protects reservoir stocks at North West Area Reservoir 11, allowing storage to be maximised during a drought. 88.6Ml/d may be abstracted from the River Wharfe subject to the following conditions: • When flow in the Wharfe is less than 252Ml/d YWS must release the amount abstracted from th Wharfe abstraction point (decrease in release of 22.7Ml/d) • When flow in the Wharfe is between 252Ml/d and 389Ml/d YWS must release the amour abstracted from the Wharfe abstraction point less 6.8Ml/d (NO CHANGE) • When flow in the Wharfeis between 389Ml/d and 488Ml/d YWS may abstract up to 88.6Ml/d (North West Area Reservoir 11 releases not required) - (NO CHANGE) • When flow in the Wharfe is above 488Ml/d YWS may abstract up to 93.2Ml/d (North West Are Reservoir 11 releases not required) - (NO CHANGE)
Implementation timetable **Preparation time, time of year effective, duration**	Preparation time: 4 weeks prior to advertising, implementation period 5-6 weeks (advertisement, representation, enquiry, granting) Time of year effective: implemented when reservoir stocks approach drought control line so could be effective any time of year Duration: Minimum period of restriction typically 12 weeks	Preparation time: 4 weeks prior to advertising, implementation period 5-6 weeks (advertisement, representation, enquiry, granting) Time of year effective: implemented when reservoir stocks approach drought control line so could be effective any time of year Duration: Minimum period of restriction typically 12 weeks	Preparation time: 4 weeks prior to advertising, implementation period 5-6 weeks (advertisement, representation, enquiry, granting) Time of year effective: implemented when reservoir stocks approach drought control line so could be effective any time of year Duration: Minimum period of restriction typically 12 weeks
Permissions required and constraints **Including details of liaison with bodies responsible for giving any permits or approvals**	Permission from Defra required following application of a drought order. A public enquiry may be required. Liaise with Environment Agency.	Permission from Defra or the Environment Agency required following application of a drought order or permit. A public enquiry may be required. Liaise with Environment Agency.	Permission from Defra or the Environment Agency required following application of a drought order or permit. A public enquiry may be required before a decision is made on the whether or not the application is granted. Liaise with Environment Agency.
Risks associated with option	Changes in operation to the current abstraction licence have potential environmental impacts. These will be assessed through the Environmental Assessment Report submitted with the application.	Changes in operation to the current abstraction licence have potential environmental impacts. These will be assessed through the Environmental Assessment Report submitted with the application.	Changes in operation to the current abstraction licence have potential environmental impacts. These will be assessed through the Environmental Assessment Report submitted with the application.
Risk to the Environment **(Major/Moderate/Minor or uncertain)**	Hydrological and water quality assessment identified a zone of impact of the drought option of: River Ouse. The assessment concluded that there would be Moderate impacts (in summer) and Negligible impact (in winter) on hydrology (river flow and level) and a Moderate risk to water quality associated with this option.	Hydrological and water quality assessment identified a zone of impact of the drought option on the River Ure. The assessment concluded that there would be Moderate impacts on hydrology (river flow and level) and a Moderate risk to water quality associated with this option.	Hydrological and water quality assessment identified a zone of impact of the drought option on the River Wharfe. The assessment concluded that there would be Moderate impacts (summer/autumn) and Minor impacts (winter) on hydrology(river flow and level) and a Moderate risk to water quality associated with this option.
Summary of likely environmental impacts **Include details for features of moderate and major sensitivity and minor sensitivity features from designated sites**	Environmental assessment has identified potential environmental sensitivities (prior to mitigation) within the zone of influence to: WFD compliance Fish (Minor) Invertebrates (Minor) NERC and Notable Fish – numerous (Minor to Moderate) River Ouse LWS (Minor) Gollie Ponds LWS (Minor)	Environmental assessment has identified potential environmental sensitivities (prior to mitigation) within the zone of influence to: WFD compliance Fish (Minor) Invertebrates (Minor) NERC and Notable Fish – numerous (Minor to Moderate, but Moderate to Major within the cumulative reach). White-clawed crayfish (Moderate) Water vole (Moderate)	Environmental assessment has identified potential environmental sensitivities (prior to mitigation) within the zone of influence to: WFD compliance Fish (Moderate) Macroinvertebrates (Moderate) NERC and Notable Fish - numerous (Minor to Moderate) Water Vole (Moderate) River Wharfe, Otley & Mid Wharfedale/Wetherby LWS (Minor)

Option name	Hull increased abstraction	Derwent annual abstraction increase
Trigger(s)	Preceding actions: Publicity campaign and temporary use bans in force (April – September only) Triggers: Risk of shortage of supply established	Preceding actions: Publicity campaign and temporary use bans in force (April – September only) Triggers: Risk of shortage of supply established
Most likely authorisation in a drought (permit or order)	Permit	Permit
Current Legal Requirement (Compensation release, minimum maintained flow or authorised abstraction limit)	•Hands off flow (HOF) of 45.45Ml/d • Abstractions of up to 68.19Ml/d (acknowledging HOF) when flows are between 45.45 an 159Ml/d • Abstractions of up to 113.65Ml/d when flows are between 159Ml/d and 340.95Ml/d, wit specified residual flows left in river •Unlimited daily abstraction when flows are greater than 340.95 Ml/d In reality, abstraction at higher flows is limited by infrastructure.	The annual maximum volume we can take from the River Derwent Site 1 is 30,400 Ml/year and the daily maximum permitted is 114 Ml/d. Further upstream we are licensed to take 75,000 Ml/year and 205Ml/d Max from the River Derwent site 2. The licence agreements held with the Environment Agency for both sites, include an aggregated annual limit of 94,841 Ml/year and 305 Ml/d. To adhere to the licence conditions we control the volume abstracted daily to ensure we stay within the annual limit. Hands-off flow condition whereby combined abstraction cannot exceed previous day gauged flow at Buttercrambe, when flow at Buttercrambe is less than 305 Ml/d
Deployable Output of action - Variable depending on conditions and duration of drought permit	Up to 20.45	The benefit of the option will depend on when permission is granted, as it is related to the number of days left in the licensing year.
Action Description	River Hull increased abstraction - Reduction of Hands off Flow threshold, increasing allowed abstraction in the lower flow bands. •Hands off flow (HOF) of 25Ml/d •Abstractions of up to 68.19Ml/d (acknowledging HOF) when flows are between 25 and 159Ml/d •Abstractions of up to 113.65Ml/d when flows are between 159Ml/d and 340.95Ml/d, with specified residual flows left in river- (NO CHANGE) •Unlimited daily abstractions when flows are greater than 340.95 Ml/d (NO CHANGE) In reality, abstraction at higher flows is limited by infrastructure.	River Derwent abstraction increase - The River Derwent option is to increase the volume we take in a licensing year from the River Derwent Site 1 by ~2,300 Ml to 32,700 Ml (application specific), whilst reducing the annual licence volume we are permitted to take from an upstream abstraction point on the River Derwent Site 2 by ~2,300 Ml to 71,700 Ml (application specific but noted as to same value as River Derwent Site 1 increase). The drought option would allow a temporary increase in the annual abstraction limit on the River Derwent Site 1 that would be balanced by a corresponding reduction in the annual limit on the River Derwent Site 2. The increased annual abstraction from the River Derwent Site 1 would allow abstraction of the licenced daily maximum for the remainder of the licensing year (April to March). This option will not change the daily licence limits at each site but will allow a greater volume of water to be abstracted from the River Derwent Site 1 in a licensing year. The aggregated limits applied to both abstractions would also remain in place.
Implementation timetable **Preparation time, time of year effective, duration**	Preparation time: 4 weeks prior to advertising, implementation period 5-6 weeks (advertisement, representation, enquiry, granting) Time of year effective: implemented when reservoir stocks approach drought control line so could be effective any time of year Duration: Minimum period of restriction typically 12 weeks	Preparation time: 4 weeks prior to advertising, implementation period 5-6 weeks (advertisement, representation, enquiry, granting) Time of year effective: January to March. We would not anticipate exceeding the annual licence limit until February at the earliest, and most likely March. Therefore the permit would only apply in February and March, however we might increase our daily average use from the date it was granted, no earlier than 1 January.
Permissions required and constraints **Including details of liaison with bodies responsible for giving any permits or approvals**	Permission from Defra or the Environment Agency required following application of a drought order or permit. A public enquiry may be required. Liaise with Environment Agency.	Permission from Defra or the Environment Agency required following application of a drought order or permit. A public enquiry may be required before a decision is made on the whether or not the application is granted. Liaise with Environment Agency.
Risks associated with option	Changes in operation to the current abstraction licence have potential environmental impacts. These will be assessed through the Environmental Assessment Report submitted with the application.	Changes in operation to the current abstraction licence have potential environmental impacts. These will be assessed through the Environmental Assessment Report submitted with the application.
Risk to the Environment **(Major/Moderate/Minor or uncertain)**	Hydrological and water quality assessment identified a zone of impact of the drought option on the River Hull. The assessment concluded that there would be Major impacts (in low flow periods of July to December) and Moderate impacts (in January to June) on hydrology (river flow and level) and a Major risk to water quality associated with this option.	Hydrological screening assessed negligible hydrological impacts of the drought permit conditions.
Summary of likely environmental impacts **Include details for features of moderate and major sensitivity and minor sensitivity features from designated sites**	Environmental assessment has identified potential environmental sensitivities (prior to mitigation) within the zone of influence to: WFD compliance Fish (Moderate) Invertebrates (Minor) NERC and Notable species – fish (Moderate)	All relevant features were screened as with negligible impacts

Baseline information used	Environmental assessment used YWS and EA data and information on: reservoir management, measured reservoir outflow, water resource modelling of outflow in critical drought years, gauged river flows and levels; routine WFD water quality monitoring, water quality and flow pressures (abstraction licence and discharge consent registers), YWS STW information; macroinvertebrate sampling data and LIFE, WHPTNATXA and WHPTASPT EQI scores, fish abundances from monitoring surveys, Fisheries Classification Scheme (2) data and publicly available data on designated sites, distributions of NERC Act Section 41 priority species, distribution of Invasive and Non-Native Species and recreational resources, in addition to local EA / YWS knowledge.	Environmental assessment used YWS and EA data and information on: reservoir management, measured reservoir outflow, water resource modelling of outflow in critical drought years, gauged river flows and levels; routine WFD water quality monitoring, water quality and flow pressures (abstraction licence and discharge consent registers), YWS STW information; macroinvertebrate sampling data and LIFE, WHPTNATXA and WHPTASPT EQI scores, fish abundances from monitoring surveys, Fisheries Classification Scheme (2) data and publicly available data on designated sites, distributions of NERC Act Section 41 priority species, distribution of Invasive and Non-Native Species and recreational resources, in addition to local EA / YWS knowledge.	Environmental assessment used YWS and EA data and information on: reservoir management, measured reservoir outflow, water resource modelling of outflow in critical drought years, gauged river flows and levels; routine WFD water quality monitoring, water quality and flow pressures (abstraction licence and discharge consent registers), YWS STW information; macroinvertebrate sampling data and LIFE, WHPTNATXA and WHPTASPT EQI scores, fish abundances from monitoring surveys, Fisheries Classification Scheme (2) data and publicly available data on designated sites, distributions of NERC Act Section 41 priority species, distribution of Invasive and Non-Native Species and recreational resources, in addition to local EA / YWS knowledge.	Environmental assessment used YWS and EA data and information on: reservoir management, measured reservoir outflow, water resource modelling of outflow in critical drought years, gauged river flows and levels; routine WFD water quality monitoring, water quality and flow pressures (abstraction licence and discharge consent registers), YWS STW information; macroinvertebrate sampling data and LIFE, WHPTNATXA and WHPTASPT EQI scores, fish abundances from monitoring surveys, Fisheries Classification Scheme (2) data and publicly available data on designated sites, distributions of NERC Act Section 41 priority species, distribution of Invasive and Non-Native Species and recreational resources, in addition to local EA / YWS knowledge.	Environmental assessment used YWS and EA data and information on: reservoir management, measured reservoir outflow, water resource modelling of outflow in critical drought years, gauged river flows and levels; routine WFD water quality monitoring, water quality and flow pressures (abstraction licence and discharge consent registers), YWS STW information; macroinvertebrate sampling data and LIFE, WHPTNATXA and WHPTASPT EQI scores, fish abundances from monitoring surveys, Fisheries Classification Scheme (2) data and publicly available data on designated sites, distributions of NERC Act Section 41 priority species, distribution of Invasive and Non-Native Species and recreational resources, in addition to local EA / YWS knowledge.
Summary of additional baseline monitoring requirements	Details of additional baseline monitoring requirements, are incorporated within the Environmental Monitoring Plan, listing the features to be monitored and methods used; location, timing and frequency of surveys; and who will undertake the monitoring.	Details of additional baseline monitoring requirements, are incorporated within the Environmental Monitoring Plan, listing the features to be monitored and methods used; location, timing and frequency of surveys; and who will undertake the monitoring.	Details of additional baseline monitoring requirements, are incorporated within the Environmental Monitoring Plan, listing the features to be monitored and methods used; location, timing and frequency of surveys; and who will undertake the monitoring.	Details of additional baseline monitoring requirements, are incorporated within the Environmental Monitoring Plan, listing the features to be monitored and methods used; location, timing and frequency of surveys; and who will undertake the monitoring.	Details of additional baseline monitoring requirements, are incorporated within the Environmental Monitoring Plan, listing the features to be monitored and methods used; location, timing and frequency of surveys; and who will undertake the monitoring.
Mitigation measures	Mitigation measures and accompanying monitoring have been identified for serious impacts of the drought option (features of moderate and major sensitivities, and minor sensitivities to designated sites - as listed above) through discussion with the EA. Details are incorporated within the Environmental Monitoring Plan.	Mitigation measures and accompanying monitoring have been identified for serious impacts of the drought option (features of moderate and major sensitivities, and minor sensitivities to designated sites - as listed above) through discussion with the EA. Details are incorporated within the Environmental Monitoring Plan	Mitigation measures and accompanying monitoring have been identified for serious impacts of the drought option (features of moderate and major sensitivities, and minor sensitivities to designated sites - as listed above) through discussion with the EA. Details are incorporated within the Environmental Monitoring Plan.	Mitigation measures and accompanying monitoring have been identified for serious impacts of the drought option (features of moderate and major sensitivities, and minor sensitivities to designated sites - as listed above) through discussion with the EA. Details are incorporated within the Environmental Monitoring Plan	In line with the DPG, only features identified as either: 1) uncertain; 2) moderate-major sensitivity; or 3) minor sensitivity in a designated site form the scope of monitoring, environmental assessment and consideration of mitigation actions. On this basis no mitigation is required
Impact on other activities e.g. fisheries, industry etc	Screening identified possible impacts on: Angling - River Ouse (low)	Screening identified possible impacts on: Angling - River Ure (Medium) Other Water Sports - River Ure (low)	Screening identified possible impacts on: Angling - River Wharfe (low)	Screening identified possible impacts on: Angling on Tidal River Hull (low)	Screening identified no further impacts.
WFD Compliance	Reach 1: Impacts on fish and macroinvertebrates would be minor. The impacts would not be associated with WFD deterioration based on the criteria outlined in the Environmental Assessment Report.	Reach 1 and Reach 2 (cumulative only): Impacts on fish and macroinvertebrates would be minor. The impacts would not be associated with WFD deterioration based on the criteria outlined in the Environmental Assessment Report.	Reach 1: Impacts on macroinvertebrates and fish would be moderate. The impacts would not be associated with WFD deterioration based on the criteria outlined in the Environmental Assessment Report.	Reach 1 was considered for assessment and the impacts of fish and invertebrates would be N/A. The impacts would not associate with WFD deterioration in any of the waterbodies based on the criteria set out in the Environmental Assessment Report. Reach 2: The impacts on fish would be moderate. The impacts on invertebrates would be minor. The impacts would not be associated with WFD deterioration based on the criteria outlined in the Environmental Assessment Report.	Waterbodies were considered for assessment. The impacts would not associate with WFD deterioration in any of the waterbodies based on the criteria set out in the Environmental Assessment Report.

Water Resource Zone	Type of action	Option	Summary of action	Trigger for action to be considered	Likely benefit / saving	Barriers	Environmental impacts	Timescales	Priority order (on a scale of 1 to 3)
Grid SWZ + East SWZ	Demand	Removal of exceptions	Removal of temporary use ban (TUBs) non-statutory exceptions and concessions so that greater restrictions are applied and to a greater number of customers.	Regional reservoir stocks forecast to fall below 20% within next 4 weeks	It is assumed total combined demand reduction due to TUBs and NEUB is 6%. This action would increase the potential of achieving 6%.	Changes to TUBs conditions may create confusion or impact on customer good will. The additional restrictions may be marginal. Savings may only be achieved during peak demands i.e. hosepipes and paddling pools are used excessively during hot, dry days. Many commercial business will be impacted although it is noted that statutory exceptions would still apply.	n/a	2 weeks to provide formal notice but would raise awareness through media channels once the trigger reached	1
Grid SWZ + East SWZ	Demand	Drought orders	Use full range of powers available with non- essential use (NEU) drought orders. Removal of non-statutory NEU exceptions and concessions so that greater restrictions are applied and to a greater number of customers. Assumes all supply-side permit applications (where a benefit is achieved) are already in place.	Level 3 actions in place and reservoir stocks one week from the DCL	It is assumed total combined demand reduction due to TUBs and NEUB is 6% of demand at time of implementing (50-75Ml/d). This action would increase the potential of achieving 6%.	Changes to NEUB may create confusion or impact on customer good will. The additional restrictions may be marginal. Many commercial business will be impacted although statutory exceptions would still apply.	N/A	2 weeks to provide formal notice but would raise awareness through media channels once the trigger reached	1
Grid SWZ + East SWZ	Demand	Yorkshire Water customer campaign	Create awareness of the situation and appeal for extreme demand reduction action e.g. reduce use to 50Ml/d. All media channels will be used including regular appearances on local news channels.	Level 3 actions in place and reservoir stocks one week from the DCL	Assumed up to 5% of demand at time of implementing (e.g. Approximately 70Ml/d if average demand 1300Ml/d). This is unprecedented action. If all of Yorkshire Water's domestic customers reduced consumption to 50l/h/d around 400 Ml/d would be saved. However, we cannot assume all customers would achieve this volume.	Many customers may be unwilling or unable to reduce demand.	n/a	Would be a continual process from onset of drought with the level of messaging increasing	1
Grid SWZ + East SWZ	Demand	National Media & Communications	National campaigns to change culture (e.g. excessive water use seen as socially unacceptable), keeping customers aware of the current situation and risks if do not take extreme action. Produce guides for customers to demonstrate how to restrict water use e.g. to 50 litres/ person/day. Hard hitting messages and images will be developed and publicity increased by use of national campaign.	Level 3 actions in place and reservoir stocks one week from the DCL	As above however, a national campaign may have greater success.	Many customers may be unwilling or unable to reduce to 50 l/h/d. Requires all water companies to contribute and Government support to be a true national campaign.	N/A	0-6 weeks. It is assumed such a campaign would be developed through the National Drought Group prior to companies reaching extreme drought action triggers but could take several weeks to be fully implemented.	1 - assuming many companies impacted
Grid SWZ + East SWZ	Demand	Pressure management	Reduce pressure while still maintaining essential services e.g. night time reductions. Pumping stations and pressure reduction valves controlling water distribution would be optimised to a level that would just meet standards.	Level 3 actions in place and reservoir stocks one week from the DCL	0-2Ml/d	Pressure management in Yorkshire is controlled at a level that meets service standards and further achievable savings would be very low without creating a risk of failing service standards.	N/A	Would start when trigger reached but take up to several weeks to achieve full benefits.	1
Grid SWZ	Supply	South Area Reservoir 2 to wider reservoir system transfer	This option would require a new raw water pumping station from South Area Reservoir 2 and a transfer pipeline to another South Area Reservoir, part of the Holme Valley Reservoirs system.	In a second year of drought and reservoir stocks six weeks away from crossing the drought control line.	5 Ml/d	Pipeline route may require more land - It traverses moorland terrain and requires two stage pumping. Significant lift due to terrain. Straightforward requirements for pumping and controls. Inadequate power capacity to run the proposed pumps. Requires additional power.	Full environmental investigation required. EIA screening required. Additional abstractions are within existing licence, but option requires new, additional infrastructure and land requirements, hence the need for full investigations.	20 months for and Environmental Impact Assessment (EIA), geotechnical surveys, pipeline construction, pump installation and commissioning.	1, but only in a drought lasting two or more years
Grid SWZ	Supply	South West Reservoir 15 to other South West Reservoirs	The proposed solution is to construct a new pumping main from South West Reservoir 15 to two other South West Area Catchwaters. The scheme does not rely solely on the existing rising main and establishes an alternative transfer route, improving system robustness during asset outages and drought events. It would create a dual purpose and highly flexible network arrangement within this area.	In a second year of drought and reservoir stocks six weeks away from crossing the drought control line.	0 Ml/d This scheme is a duplication of an existing pipeline instead of providing new water into the system. This new pipe will therefore be a more reliable supply of available resources in a drought situation.	Land Access and permissions and potential geotechnical and construction constraints during pipeline construction. Power supply constraints with the provision of a new power supply for pumping infrastructure. Full environmental investigations required	Full environmental investigation required. No changes to existing abstraction licence arrangements (however drought permit or licence variation may be required), but option requires new, additional infrastructure and land requirements, hence the need for full investigations. The location is adjacent to but not within the Peak District National Park. The existing pipeline and catchwaters are located within Dark Peak SSSI, South Pennine Moors SAC and the Peak District Moors (South Pennine Moors Phase 1) SPA.	In the order of 12+ months. The overall programme will be strongly influenced by the extent of environmental assessment required (including the potential need for an Environmental Impact Assessment), land access negotiations, planning consent, and regulatory approvals from the Environment Agency (EA) and the Drinking Water Inspectorate (DWI).	1, but only in a drought lasting two or more years
Grid SWZ	Supply	Catterick Groundwater Option 1	Option is to apply for a drought permit or drought order to increase abstraction from an existing borehole, which is located in the Carboniferous Limestone, that it is heavily confined and artesian. The aquifer has good yield and favourable hydrogeological conditions. The option would require improvements to the associated treatment works and potential derogation to the third party abstraction.	In a second year of drought and reservoir stocks six weeks away from crossing the drought control line.	2 Ml/d during drought conditions.	Assumes permit/order would be granted. Would need to meet Water Supply (Water Quality) Regulations. Hydraulic connectivity requires investigation.	HIA would be required to assess groundwater interactions with third party groundwater supplies and surface water . Aquifer Storage and Recharge (ASR) and Managed Aquifer Recharge (MAR) has been considered at other sources across YWS' supply area; however ASR is not particularly feasible for this option because of the artesian aquifer. It is a confined aquifer so unlikely to have interaction with surface water. Likely engagement with EA to confirm that there would be no impacts. High-level understanding of low flow impacts is required, and any mitigation if required.	Up to 12 months, allowing for Hydrogeological Impact Assessment (HIA), Environmental Assessment Report (EAR), water quality testing and DWI approval only. To increase abstraction from the existing licence would require testing to determine yields, within the 12 months' timescale. The option of drilling a new BH was considered to avoid the existing BH resource constraints. However, a new borehole would require longer timescales to allow for drilling, testing, licensing; overall, the estimate would be up to 18 months to allow connections to existing infrastructure.	1, but only in a drought lasting two or more years

Grid SWZ	Supply	Doncaster Groundwater Option 1	Recommissioning of two boreholes at Doncaster Groundwater Site 1 which has an unused existing licence and are currently out of operation. Any abstracted water would either require new on-site treatment or a raw water transfer to another Doncaster water treatment works. The option would provide resilience, rather than new water reducing grid input to the Doncaster area.	In a second year of drought and reservoir stocks six weeks away from crossing the drought control line.	Up to 4.55 Ml/d	Assumes a drought permit or order would be granted. Would need to meet Water Supply (Water Quality) Regulations. Hydraulic connectivity requires investigation. Site was taken out of service in 2013 due to Regulation 26 issues (turbidity) along with other operational constraints. There is a risk that proposed equipment may not fit within existing site boundary. Planning consent required for installation of new chemical storage and dosing kiosks on site (subject to final size).	A Hydrogeological Impact Assessment (HIA) may not be required as the site is already licenced. Likely engagement with EA required to confirm no impacts. Environmental investigations found no impact on local ponds; however, there may be a need for a high-level understanding of surface water low flow impacts, and any mitigation if required.	Timescales: Up to 18 months for commission survey and implementation of any options. In addition to proposed connections into the Grid, there is potential for this to be used with plug-and-play mobile package treatment plants (micro-filtration, etc). The timescales would allow for infrastructure and treatment to be put in place.	1, but only in a drought lasting two or more years
Howardian Hills	Supply	Pickering / Thirsk Groundwater Option 1	The proposed scheme provides more reliability and resilience to Pickering and Thirsk areas. Two new boreholes to be drilled, along with a new service reservoir and network infrastructure upgrades. During lower groundwater levels, the flow at the associated springs east of the Water Treatment Works reduces. When flow over the exit weir ceases, total daily abstraction is limited to 12 Ml/d from 17 Ml/d. A Drought Permit may be possible to increase abstraction when flow over the associated spring weir is zero. Yield is available in the aquifer.	In a second year of drought and reservoir stocks six weeks away from crossing the drought control line.	4 Ml/d Drought Permit to allow maximum works output (17 Ml/d) when normal output licence limited to 12 Ml/d when flow over associated spring weir is zero.	Restrictions in network connections may reduce the usefulness of the additional water. Would need modelling to improve the benefit available. By 2027 or possibly 2030 network enhancements will improve local storage and connections to the Thirsk section of the network.	Likely minimal, restricted to impacts on the water level in the associated springs as flow from the springs has already ceased at this point. EA may require additional monitoring of River Rye, and other water courses in the area.	Drought option available immediately. Networks upgrades and improved storage available between 2027 and 2030.	1, but only in a drought lasting two or more years
Selby Ring Main	Supply	Selby Groundwater Option 1	Option is to return one of the on-site boreholes to service through installation of an automated run to waste/return to service valve. [Additional: A further onsite boreholes is currently out of operation, drilling of replacement will return site to full designed operation and provide greater resilience and potential to increase abstraction beyond licence if water can be used.]	In a second year of drought and reservoir stocks six weeks away from crossing the drought control line.	5 Ml/d. Change to running procedure will allow site to achieve licensed output. The additional water will support Selby and Doncaster areas.	Cost of installation of new valves, instruments and sensors and concerns at speed valves and sensors can react.	Minimal. No surface water connection, no springs. Localised increased depression of groundwater levels.	AMP8. No fixed plans for work at present.	1, but only in a drought lasting two or more years
Selby Ring Main	Supply	Selby Groundwater Option 2	Clean the raw water main associated with Selby Groundwater Option 2 (scouring or ice pigging) to allow full flow to the associated Selby Water Treatment Works. The effect is to maximise a Selby Water Treatment Works input to the Selby Ring Main and then Grid systems.	In a second year of drought and reservoir stocks six weeks away from crossing the drought control line.	5 Ml/d. Repairs/maintenance will allow site to achieve licensed output.	The Selby Water Treatment Works output is limited by sand deposits in the associated raw water main. The main needs cleaning (scouring or ice pigging are two options) to allow full flow. The mains cleaning may prove difficult to arrange and carry out due to ongoing operations at the Selby Water Treatment Works. Main is also suspected of leaking but length and location makes leak location difficult.	Minimal. No surface water connection, no springs. Short term impact on groundwater levels but low risk.	Solution could take up to 12 months: AMP8. No fixed plans for work at present.	1, but only in a drought lasting two or more years
Grid SWZ	Supply	River Aire Option 1	Construction of a new intake on the south bank of the River Aire, with a new pipeline to transfer raw water to a Bradford Water Treatment Works. The location chosen minimises the length of pipeline required and disruption by avoiding construction in urbanised areas. The proposed scheme would largely operate as an independent source of raw water for the Water Treatment Works. The feasibility of a direct connection into the works itself is unknown and would require further investigation. It is currently assumed that the new pipeline would connect into one of the existing Rising Main(s) externally to the site.	In a second year of drought and reservoir stocks six weeks away from crossing the drought control line.	Up to 50 Ml/d has been considered previously as a possible DO, depending on water availability. However, the River Aire is thought to be unlikely to have the stated amounts of water (50 Ml/d), particularly during a drought. Local requirements of 5 Ml/d is more likely to be met, rather than a regional requirement for 50 Ml/d.	New potential abstraction licences from other sectors may limit water availability for the scheme. Inadequate flow within the River Aire during drought could reduce efficacy of abstraction. Assumes drought permit / order would be granted. Geotechnical constraints may limit feasibility of pipeline construction methods outlined. Electrical supply to the site may require significant additional infrastructure.	Full environmental investigations required. A new license would be required for the abstraction of raw water from the River Aire. The proposed abstraction area lies within the Impact Risk Zone of Bingley South Bog and Trench Meadows SSSIs. Consultation with Natural England may be necessary to determine potential impacts and mitigation measures.	3 – 6 years allowing for surveys, extensive water quality sampling 12 months for design, approval and construction	1, but only in a drought lasting two or more years
Grid SWZ	Supply	River Aire Option 2	Construction of a new intake and pumping station on the north bank of the River Aire. It is proposed that the new abstraction would be able to direct flows either southwards towards a Bradford Water Treatment Works (which is the current flow direction) or northwards onto a Keighley WTW.	In a second year of drought and reservoir stocks six weeks away from crossing the drought control line.	Up to 50 Ml/d has been considered previously as a possible DO, depending on water availability. However, the River Aire is thought to be unlikely to have the stated amounts of water (50 Ml/d), particularly during a drought. Local requirements of 5 Ml/d is more likely to be met, rather than a regional requirement for 50 Ml/d.	Potential connection into existing aqueduct is in a residential area with limited access. Multiple hot tap connections into main to meet required cross sectional area. Hot tapping into an old pipe under 20 bar pressure is a very high risk activity. The option would require a critical component (non-return valve, NRV) to prevent the high-pressure aqueduct from draining into the river. Environmental impacts require investigation. Planning consents required.	Full environmental investigations required. A new license would be required for the abstraction of raw water from the River Aire. The proposed abstraction area lies within the Impact Risk Zone of Bingley South Bog and Trench Meadows SSSIs. Consultation with Natural England may be necessary to determine potential impacts and mitigation measures.	3 – 6 years allowing for surveys, extensive water quality sampling 12 months for design, approval and construction	1, but only in a drought lasting two or more years

Environment Agency Drought Order compensation flow reduction actions

There are three reservoirs in our region that are Yorkshire Water assets no longer used for water supply and we would not be able to use them for supply in a drought. If drought actions were required for either of these three sites, it would be the Environment Agency's responsibility to apply for a Drought Order in accordance with the Environment Agency's guidelines*Compensation only reservoirs in dry weather note, June 2019* . However, as they are Yorkshire Water assets we have created environmental impact reports and would carry out the monitoring and mitigation if they were implemented.

Option name		**South West Area Reservoir 19**	**South West Area Reservoir 20**	**North West Area Reservoir 13**
Trigger(s)		Triggers – Risk of shortage of supply established: 1. Individual Reservoir Stocks <Normal Control Line and approaching Drought Control Line (within 1-2 weeks) 2. Individual Reservoir Stocks have crossed Drought Control Line and remained below for more than 4 weeks	Triggers – Risk of shortage of supply established: 1. Individual Reservoir Stocks <Normal Control Line and approaching Drought Control Line (within 1-2 weeks) 2. Individual Reservoir Stocks have crossed Drought Control Line and remained below for more than 4 weeks	Triggers – Risk of shortage of supply established: 1. Individual Reservoir Stocks <Normal Control Line and approaching Drought Control Line (within 1-2 weeks) 2. Individual Reservoir Stocks have crossed Drought Control Line and remained below for more than 4 weeks
Most likely authorisation in a drought (permit or order)		Environment Agency Drought Order	Environment Agency Drought Order	Order
Current Legal Requirement (Compensation release, minimum maintained flow or authorised abstraction limit)		Compensation release is 1.33 Ml/d (defined in Act as 293,000 gallons/day continuous)	Current compensation releases are provided under a licence held with the Environment Agency; Nov - Jan inclusive 4.00 Ml/d Feb - Oct inclusive 1.98 Ml/d	0.382Ml/d (15 April – 15 October) 0.764Ml/d (15 October – 15 April)
Deployable Output of action - Variable depending on conditions and duration of drought order	**Action 1 Description**	Compensation release reduced by 50% to 0.67 Ml/d providing 0.66 Ml/d benefit	Reduce the current compensation release by 50% to; Nov - Jan 2.00 Ml/d providing a benefit of 2.00 Ml/d Feb - Oct 0.99 Ml/d providing a benefit of 0.99 Ml/d	0.191Ml/d (15 April – 15 October) providing 0.191Ml/d benefit 0.382Ml/d (15 October – 15 April) providing 0.382Ml/d benefit
	Action 2 Description	Compensation release reduced by 67% to 0.44 Ml/d providing 0.89 Ml/d benefit	Reduce the current compensation release by 67% to; Nov - Jan 1.33 Ml/d providing a benefit of 2.67 Ml/d Feb - Oct 0.66 Ml/d providing a benefit of 1.32 Ml/d	0.127Ml/d (15 April – 15 October) providing 0.255Ml/d benefit 0.255Ml/d (15 October – 15 April) providing 0.509Ml/d benefit
Implementation timetable Preparation time, time of year effective, duration		Preparation time: 4 weeks prior to advertising, implementation period 5-6 weeks (advertisement, representation, enquiry, granting) Time of year effective: implemented when reservoir stocks approach drought control line so could be effective any time of year. Compensation release reductions may be phased to minimise effect on downstream watercourses. Duration: Minimum period of restriction typically 12 weeks	Preparation time: 4 weeks prior to advertising, implementation period 5-6 weeks (advertisement, representation, enquiry, granting) Time of year effective: implemented when reservoir stocks approach drought control line so could be effective any time of year. Compensation release reductions may be phased to minimise effect on downstream watercourses. Duration: Minimum period of restriction typically 12 weeks	Preparation time: 4 weeks prior to advertising, implementation period 5-6 weeks (advertisement, representation, enquiry, granting) Time of year effective: implemented when reservoir stocks approach drought control line so could be effective any time of year. Compensation release reductions may be phased to minimise effect on downstream watercourses. Duration: Minimum period of restriction typically 12 weeks
Permissions required and constraints Including details of liaison with bodies responsible for giving any orders or approvals		Permission from Defra following application of a drought order. A public enquiry may be required. Liaise with Environment Agency.	Permission from Defra following application of a drought order. A public enquiry may be required. Liaise with Environment Agency.	Permission from Defra following application of a drought order. A public enquiry may be required. Liaise with Environment Agency.
Risks associated with option		Reduction in compensation releases / maintained flows have potential environmental impacts. These will be assessed through the Environmental Assessment Report submitted with the application.	Reduction in compensation releases / maintained flows have potential environmental impacts. These will be assessed through the Environmental Assessment Report submitted with the application.	Reduction in compensation releases / maintained flows have potential environmental impacts. These will be assessed through the Environmental Assessment Report submitted with the application.
Risk to the Environment (Major/Moderate/Minor or uncertain)		Hydrological and water quality assessment identified a zone of impact of the drought option of: Walsden Water and River Calder. The assessment concluded that there would be Major impacts on hydrology (river flow and level) and a Moderate risk (summer/autumn) to water quality associated with this option.	Hydrological and water quality assessment identified a zone of impact of the drought option of: River Ribble and the River Holme. The assessment concluded that there would be Major impacts on hydrology (river flow and level) and a Moderate risk to water quality associated with this option.	Hydrological and water quality assessment identified a zone of impact of the drought option of: Elslack Beck. The assessment concluded that there would be Major impacts on hydrology (river flow and level) and a Moderate risk to water quality associated with this option.

Summary of likely environmental impacts **Include details for features of moderate and major sensitivity and minor sensitivity features from designated sites**	Environmental assessment has identified potential environmental sensitivities (prior to mitigation) within the zone of influence to: WFD compliance Macroinvertebrates (Minor and Moderate) Fish (Moderate and Major) NERC and Notable Fish – (Minor to Major) White-clawed crayfish (Major) Gorpley Clough LNR (Moderate)	Environmental assessment has identified potential environmental sensitivities (prior to mitigation) within the zone of influence to: WFD compliance Macroinvertebrates (Moderate) Fish (Moderate) NERC and Notable Fish - numerous (Minor to Moderate) White-clawed crayfish (Moderate) Water vole (Moderate)	Environmental assessment has identified potential environmental sensitivities (prior to mitigation) within the zone of influence to: WFD compliance Macroinvertebrates (Moderate) Fish (Major) NERC and Notable Fish - numerous fish (Moderate to major)
Baseline information used	Environmental assessment used YWS and EA data and information on: reservoir management, measured reservoir outflow, water resource modelling of outflow in critical drought years, gauged river flows and levels; routine WFD water quality monitoring, water quality and flow pressures (abstraction licence and discharge consent registers), YWS STW information; macroinvertebrate sampling data and LIFE, WHPTNATXA and WHPTASPT EQI scores, fish abundances from monitoring surveys, Fisheries Classification Scheme (2) data and publicly available data on designated sites, distributions of NERC Act Section 41 priority species, distribution of Invasive and Non-Native Species and recreational resources, in addition to local EA / YWS knowledge.		
Summary of additional baseline monitoring requirements	Details of additional baseline monitoring requirements, are incorporated within the Environmental Monitoring Plan, listing the features to be monitored and methods used; location, timing and frequency of surveys; and who will undertake the monitoring.		
Mitigation measures	Mitigation measures and accompanying monitoring have been identified for serious impacts of the drought option (features of moderate and major sensitivities, and minor sensitivities to designated sites - as listed above) through discussion with the EA. Details are incorporated within the Environmental Monitoring Plan		
Impact on other activities **e.g. fisheries, industry etc**	Screening identified possible impacts on: Angling - Walsden Water (low)	Screening identified no further impacts.	Screening identified no further impacts.
WFD Compliance	Reach 1: Impacts on macroinvertebrates would be moderate and fish would be major. The impacts would not associate with WFD deterioration based on the criteria outlined in the Environmental Assessment Report. Reach 2: Impacts on macroinvertebrates would be minor and fish would be moderate. The impacts would not be associated with WFD deterioration based on the criteria outlined in the Environmental Assessment Report.	Reaches 1 and Reach 2:. Impacts on macroinvertebrates and fish would be moderate. The impacts would not be associated with WFD deterioration based on the criteria outlined in the Environmental Assessment Report. Reach 2: Impacts on macroinvertebrates would be minor and fish would be moderate. The impacts would not be associated with WFD deterioration based on the criteria outlined in the Environmental Assessment Report.	Reach 1: Impacts on macroinvertebrates would be moderate and fish would be major. The impacts would not be associated with WFD deterioration based on the criteria outlined in the Environmental Assessment Report.
Additional information	This action can only be implemented if the Environment Agency receives authorisation via a drought order. The reservoir cannot be supported by any other reservoirs therefore it has a trigger for implementing the drought action that is linked to its own stocks rather than regional stocks. However, if the regional trigger was met before the local trigger the drought action would be considered taking into account the risks.	This drought option could only be implemented if the Environment Agency applied for a drought order. This reservoir cannot be supported by any other reservoirs therefore it has a trigger for implementing the drought action that is linked to its own stocks rather than regional stocks. However, if the regional trigger was met before the local trigger the drought action would be considered taking into account the risks.	This drought option could only be implemented if the Environment Agency applied for a drought order. This reservoir cannot be supported by any other reservoirs therefore it has a trigger for implementing the drought action that is linked to its own stocks rather than regional stocks. However, if the regional trigger was met before the local trigger the drought action would be considered taking into account the risks.