Annex A Criteria for inclusion or conditional inclusion of Habitats Directive Compensatory Measures. FINAL For definitions see sheet 2. For account of excluded fish measures see Annex 3 of Fish Topic Paper.

Receptor	Objective for measure.	Measure	1 Effectiveness of measure	2 Established practice	3 Established technique	4 Development and delivery by 2020 judged feasible?	5 Significant adverse effect on other environmental feature	6 Significant adverse effect on society and economy	7 Sustainability (requirement for ongoing intervention)	8 Located within ecological functional unit	9 Ecological function matched	Included in toolkit of measures within Commission Guidance
Migratory birds/assemblage	Offset the effects of loss of habitat within Severn Estuary on SPA bird populations	Managed re-alignment to create saltmarsh for birds adjoining the Severn Estuary	(AMBER) Freshwater and freshwater and estuarine guild species. (Effectiveness will vary between species.)	(GREEN) Managed re-alignment has been applied as SPA compensation.	(GREEN) Technique is established for sites up to 500ha. Scaling up would be innovative.	(Green) Delivery thought to be achievable for relatively limited areas available in Severn, although full ecological function by 2020 is unlikely.	(GREEN) Provided siting and design takes account of environmental issues.	(AMBER) May be positive or negative depending on site specifics.	(GREEN) Subject to suitable site selection criteria being applied.	(GREEN) Adjoining Severn.	(AMBER) For some species only - saltmarsh habitat creation only possible[1].	(Amber) **Conditional inclusion** - limited effect for some species, further study needed.
Migratory birds/assemblage	Offset the effects of loss of habitat within Severn Estuary on SPA bird populations	Managed re-alignment to create saltmarsh and mudflat for birds at distance from the Severn Estuary	(RED) Measures could be designed to benefit all target species. Effectiveness as compensation depends on the certainty and predictability of changing distribution of SPA species within UK.	(RED) SPA compensation would normally be adjacent to the effected site.	(GREEN) Technique is established for sites up to 500ha. Scaling up would be innovative.	(AMBER) Challenging for larger schemes/area requirements where land assembly and consenting issues will be complex. Full ecological function unlikely by 2020.	(GREEN) Provided siting and design takes account of environmental issues.	(AMBER) May be positive or negative depending on site specifics. Potential for more sustainable flood protection and climate change adaptation. Land use change.	(GREEN) Subject to suitable site selection criteria being applied.	(RED) Measure distant from Severn	(GREEN) Potential to create mudflat, saltmarsh.	(Red/Amber) Arguably not within Commission guidance as measures would be 'far away' from existing areas. Included as measure potentially outside guidance.
Migratory birds/assemblage	Offset the effects of loss of habitat within Severn Estuary on SPA bird populations	Creation of freshwater wetland habitat for birds close to Severn Estuary	(AMBER) Will be effective for freshwater and freshwater and estuarine guilds only.	(GREEN) Has been used for past compensations eg Newport Wetlands	(GREEN) Wetland habitat creation is widely understood and applied.	(Green) Delivery thought to be achievable.	(GREEN) Provided siting and design takes account of environmental issues.	(GREEN) Provided siting and design takes account of relevant issues eg hydrology and farming.	(GREEN) Subject to suitable site selection criteria being applied.	(GREEN) Distance from Severn would need to be defined.	(AMBER) Depends on species.	(Green) But would benefit only some species.
Atlantic Saltmeadow	Compensating for loss of extent of SAC habitat.	Managed re-alignment adjoining the Severn Estuary	(GREEN) Significant ecological function possible after 3-5 years.	(GREEN) Managed re-alignment routinely applied as measure for loss of inter-tidal habitat.	(GREEN) Technique is established for sites up to 500ha. Scaling up would be innovative.	(Green) Delivery thought to be achievable, although full ecological function by 2020 is unlikely.	(GREEN) Provided siting and design takes account of environmental issues.	(AMBER) May be positive or negative depending on site specifics.	(GREEN) Subject to suitable site selection criteria being applied.	(GREEN) Adjoining Severn.	(GREEN) Match for upper saltmarsh types more likely within Severn.	(Green) Included but not applicable to all options and would not benefit all species.
Atlantic Saltmeadow	Compensating for loss of extent of SAC habitat.	Managed re-alignment at distance from the Severn Estuary	(GREEN) Significant ecological function possible after 3-5 years.	(RED) Compensation would normally be close to the affected site.	(GREEN) Technique is established for sites up to 500ha. Scaling up would be innovative.	(Green) Delivery thought to be achievable, although full ecological function by 2020 is unlikely.	(GREEN) Provided siting and design takes account of environmental issues.	(AMBER) May be positive or negative depending on site specifics. Potential for more sustainable flood protection and climate change adaptation. Land use change.	(GREEN) Subject to suitable site selection criteria being applied.	(RED) Measure distant from Severn	(GREEN) But harder to match upper saltmarsh types within Severn	(Amber) **Conditional inclusion** - depends on assessment that this measure would fit within flexible interpretation of Commission guidance
Inter-tidal mudflat and sandflat	Compensating for loss of extent of SAC habitat.	Managed re-alignment at distance from the Severn Estuary	(Green) Significant ecological function possible 3-5 years after establishment of habitat.	(RED) Compensation would normally be close to the affected site. This represents departure from established practice for EA Shoreline Management Plans etc.	(GREEN) Technique is established for sites up to 500ha. Scaling up would be innovative.	(AMBER) Challenging for larger schemes/area requirements where land assembly and consenting issues will be complex. Full ecological function unlikely by 2020.	(GREEN) Provided siting and design takes account of environmental issues.	(AMBER) May be positive or negative depending on site specifics. Potential for more sustainable flood protection and climate change adaptation. Land use change.	(GREEN) Subject to suitable site selection criteria being applied.	(RED) Measure distant from Severn	(Amber) Inter-tidal functionality can be created at distance which will contribute to coherence. However full range of Severn Estuary's functions cannot be re-created at distance.	(Amber) **Conditional inclusion** - depends on assessment that this measure would fit within flexible interpretation of Commission guidance
Sabellaria alveolata reef	Compensation for loss or decline of reef.	New notification	(AMBER) Uncertain that inter-tidal examples will be found elsewhere.	(AMBER) Has not been used in UK. But Commission guidance allows for this measure.	(RED) Notification has not been used in this way in UK.	(Green) Considered achievable.	(GREEN)	(AMBER) Does not address loss of environmental quality/services and may be seen as unfair.	(GREEN) But some costs associated with administering and supporting notification.	(RED) Measure distant from Severn	n/a Measure does not provide new ecological function	(Amber) **Conditional inclusion** - depends upon new notification of existing features being acceptable to Government.
Allis shad	Offsetting population declines in Severn Estuary and its rivers by increasing populations elsewhere	Translocation/introduction of species to new location	(AMBER) There is potential that Allis shad could be translocated to alternative rivers in which preferably they have historically been present within. The confidence of the success of this measure for this species however is likely to be low due to the current limited spawning stock.	(AMBER) Although translocation of shad is not an established practice in the UK the UK BAP for the species identifies a translocation project as one of its aims. It has however, not been implemented to date and there is no precedent for its use as a compensation/offsetting measure.	(AMBER) There are no established techniques for the translocation of allis shad in the UK. There are however, case studies from Europe although their success is yet to be determined.	(Red) It is considered unlikely that this measure could be implemented on the required scale by 2020. Further feasibility study and investigation would be needed.	(AMBER) There is potential for the translocation of shad to rivers in which they are not currently present to adversely effect native species. This potential would however, need to be assessed on a case by case basis and is likely to depend on their historical presence or absence.	(GREEN) It is considered unlikely that this measure would have a significant adverse effect on the society and economy	(RED) It is likely that ongoing intervention maybe required to sustain the translocated population inclusive of supplementary translocation and habitat improvements.	(RED) Measure would be at distance from Severn.	(AMBER) Would depend upon whether alternative populations could be established which is liekly to be dependent upon the number and location of suitable receiver rivers.	(Amber) **Conditional inclusion dependent upon further study.** The success of this measure is considered to be low due to a limited natural spawning stock. To be successful a combination of measures are likely to be required such as habitat improvements. NOT FEASIBLE FOR 2020.
Twaite shad	Offsetting population declines in Severn Estuary and its rivers by increasing populations elsewhere	Translocation/introduction of species to new location	(AMBER) There is potential that twaite shad could be translocated from the Rivers Wye, Usk and Severn to alternative rivers in which preferably they have hostically been present within. The confidence of the measure would vary from moderate to low depending upon the suitability of the receiver river among other aspects.	(AMBER) Although translocation of shad is not an established practice in the UK the UK BAP for the species identifies a translocation project as one of its aims. It has however, not been implemented to date and there is no precedent for its use as a compensation/offsetting measure.	(AMBER) There are no established techniques for the translocation of twaite shad. There are however, case studies from Europe and North America for other Alosa species many of which have been successful.	(Red) It is considered unlikely that this measure could be implemented on the required scale by 2020. Further feasibility study and investigation would be needed.	(AMBER) There is potential for the translocation of shad to rivers in which they are not currently present to adversely effect native species. This potential would however, need to be assessed on a case by case basis and is likely to depend on their historical presence or absence.	(GREEN) It is considered unlikely that this measure would have a significant adverse effect on the society and economy	(RED) It is likely that ongoing intervention maybe required to sustain the translocated population inclusive of supplementary translocation and habitat improvements.	(RED) Measure would be at distance from Severn.	(AMBER) Would depend upon whether alternative populations could be established which is liekly to be dependent upon the number and location of suitable receiver rivers.	(Amber) **Conditional inclusion.** Although to be successful a combination of measures are likely to be required such as habitat improvements. Additional study would be needed to scope and develop a project. NOT FEASIBLE FOR 2020.

Salmon	Offsetting population declines in Severn Estuary and its rivers by increasing populations elsewhere	Stocking in rivers outside the Severn Estuary and its tributaries.	(AMBER) The stocking of salmon to rivers outside the Severn Estuary could maintain levels of the overall UK stock. It would not however maintain genetically distinct Severn Estuary river stocks. The confidence of the measure would vary from high to low depending on required extent which in the case of an STP is likely ot be unprecedented.	(AMBER) There is precedent in the UK for the stocking of salmon as an offsetting measure although not generally outwith the effected river. May not be seen as additional to measures required to achieve conservation targets or natural recolonisation.	(GREEN) Stocking is a widely applied practice for salmon including examples within the Severn Estuary.	It is considered unlikely that stocking could be implemented on the scale that is likely to be required by 2020. Further feasibility study would be required of the infrastructure requirements and potential extent for application of the measure.	(AMBER) Increasing salmon stocks could adversely effect other environmental features within the receiving rivers.	(GREEN) May have a beneficial effect for the receiving rivers through providing improved recreational sport fishing opportunities or accelerating improvements.	(RED) Evidence from stocking programmes suggests that repeated intervention is likely to be required to meet/sustain conservation targets. Once targets were met intervention could be ceased.	(RED) Measure distant from Severn	(AMBER) Overall UK stock could be maintained however, genetic diversity would not be matched. Measures may not be seen as additional to natural recovery.	(Amber) **Conditional inclusion**. Would not maintain genetic diversity, but might maintain overall UK stock. To be successful this would need to be implemented together with habitat improvement measures which may not be seen as additional. NOT FEASIBLE FOR 2020.
Twaite shad	Offsetting population declines in Severn Estuary and its rivers by increasing populations elsewhere	Stocking in rivers outside the Severn Estuary and its tributaries.	(RED) Although stocking of shad is not currently practiced within the UK there is potential that the measure could be employed and be effective. The confidence of the measure is restricted however by necessary extent. The only existing population which could be a receiving stock is the River Tywi which is considered unlikely to be able to support potential substantial losses from the Rivers Usk, Wye and Severn. Due to the natal homing nature of shad there is genetic diversity within the UK stock which would be lost if supported by a single river population.	(RED) Stocking of shad is not currently an established practice within the UK or Europe. There is no precedent for the use of this measure for compensation/offsetting.	(RED) Stocking not previously attempted for this species and may result in low success rates due to shad be highly sensitive to in particular transport, handling.	(Red) Considered unlikely that this measure could be implemented by 2020. Further investigation/feasibility studies would be needed.	(AMBER) There is potential for the stocking to adversely effect native species. This potential would however, need to be assessed further.	(GREEN) It is considered unlikely that this measure would have a significant adverse effect on the society and economy	(RED) Ongoing intervention required. Might cease when recipient river had reached a sustainable level.	(RED) Measure distant from Severn	(AMBER) River Tywi is currently not meeting its conservation target and stocking may not be considered as an additional measure beyond those already planned. Support of the UK stock by one river would reduce the genetic diversity of the UK stock.	(Amber) Conditional **inclusion if measure is considered to be additional.** To be successful a combination of measures may be required such as habitat improvements which could be considered as existing requirements to meet conservation targets. Applies to **River Tywi** only. NOT FEASIBLE FOR 2020.
Allis shad	Offsetting population declines in Severn Estuary and its rivers by increasing populations elsewhere	Stocking in rivers outside the Severn Estuary and its tributaries.	(RED) Although stocking of shad is not currently practiced within the UK there is potential that the measure could be employed and be effective. The confidence of the measure is restricted however by necessary extent. The limited spawning populations would restrict the use of this measure..	(RED) Stocking of shad is not currently an established practice within the UK or Europe. There is no precedent for the use of this measure for compensation/offsetting.	(RED) Stocking not previously attempted for this species and may result in low success rates due to shad be highly sensitive to in particular transport, handling.	(Red) Considered unlikely that this measure could be implemented by 2020. Further investigation/feasibility studies would be needed.	(AMBER) There is potential for the stocking to adversely effect native species. This potential would however, need to be assessed further.	(GREEN) It is considered unlikely that this measure would have a significant adverse effect on the society and economy	(RED) Ongoing intervention required. Might cease when recipient river had reached a sustainable level.	(RED) Measure distant from Severn	Sites for receiving this measure are likely to be very limited and insufficient to match ecological function.	(Amber) Conditional **inclusion if measure is considered to be additional.** To be successful a combination of measures may be required such as habitat improvements which could be considered as existing requirements to meet conservation targets. Receiver sites for this speceis are likely to be very limited. NOT FEASIBLE FOR 2020.
Migratory fish (multiple species)	Offsetting population declines in Severn Estuary and its rivers by increasing populations elsewhere	Freshwater habitat enhancement/creation schemes and improvements to other population limiting factors.	(AMBER) Many of the migratory fish species are currently failing to meet their conservation targets which could be assisted through addressing aspects currently restricting population abundance including habitat availability, water quality etc. It is considered likely that such measures would be effective at boosting overall stock sizes within the carrying capacities of the target river systems. Consideration must however, be given to the potential additionality conflict with existing improvement plans. This measure would be needed to ensure the success of many of the other offsetting measures proposed.	(AMBER) Habitat enhancement/creation and making improvements to other population limiting factors are established practices for improving migratory fish populations and are regularly identified as primary objectives within directive management plans. Identifying measures to boost populations including improved fish passage and habitat enhancement/creation have precedent as compensation measures in UK although not at this scale. Such measures may not be seen as additional to those required and planned to achieve conservation targets.	(GREEN) Habitat enhancement/creation and the management of other population limiting factors are established techniques and at least partially understood for the majority of migratory fish species.	Depending on the extent of measures required there is potential for delivery by 2020. Further feasibility study would be needed.	(AMBER) Potential adverse effects upon other environmental features would be subject to appropriate targeting and management. There is potenial for both adverse and beneficial effects depending upon techniques employed and species under consideration.	(GREEN) May have a beneficial effect for the target rivers through providing improved recreational sport fishing opportunities or accelerating improvements.	(AMBER) Habitat enhancement/creation and the management of other population limiting factors are likely to require some level of ongoing management	(RED) Measure distant from Severn	(AMBER) Potential additionality conflict with existing management measures. Could match overall stock ecological function.	(Amber) **Conditional inclusion if measure is considered additional.** Potential measures or suite of measures suitable for the majority or all species.
Migratory fish (shad species).	Offsetting population declines in Severn Estuary and its rivers by increasing populations elsewhere	Estuarine habitat enhancement and creation schemes	(AMBER) Knowledge regarding use of the inter-tidal by shad species is limited. However it is thought that juveniles spend protracted periods within the estuarine environment and are likely to use the inter-tidal habitat.	(RED) Not an established practice and there is no precedent for its use.	(RED) Not an established technique for shad species.	(AMBER) As this is not an established technique further investigation would be needed to determine whether this could be developed as for a 2020 timeframe.	(GREEN) Potential for beneficial effects on other features.	(GREEN) Unlikely that there would be significant adverse effects.	(AMBER) There is potential that this measure would require ongoing intervention.	This measure would be implemented at distance from the Severn and its rivers.	(AMBER) There is potential that ecological function could be achieved.	(AMBER) **Conditionally included.** Based on limited available knowledge there is potential that enhancment/creation of this habitat type could show some promise as an offsetting measure for this species. Further investigation would be needed and consideration given to whether this could be included within a 2020 timeframe. Consider as targeting criterion for inter-tidal habitat creation.

Migratory fish (multiple species)	Compensating for losses to the network of designated sites by notifying new areas	New notification of existing non-SAC populations.	(AMBER) Due to the atypical nature of the Severn Estuary and its rivers it is considered unlikely that sites could be identified to incorporate all current designated features. This measure would not increase or maintain the stock levels of the species and as such offset potential losses but would rather maintain the network of designated sites.	(AMBER) There is no known precedent of this type of compensation measure within the UK or Europe. Commission guidance allows for this measure.	(RED) Notification has not been used in this way before in the UK.	(Amber) Likely to be feasible for 2020.	(GREEN) It is considered unlikely that this compensation measure would have significant adverse effects upon other environmental features.	(AMBER) Does not address loss of environmental quality/services and may be seen as unfair.	(RED) There are likely to be costs associated with achieving/maintaining conservation targets of the designated features, administration and supporting notification.	(RED) Measure distant from Severn	(RED) This measure would not provide new ecological function or offset population losses.	(Amber) **Conditional inclusion** if this was thought to be an acceptable approach. The policy implications would need to be considered.