Sussex Ouse Conservation Society

Observations with respect to the document "The Sussex Ouse a vision for the 21st century" (Sussex Ouse Restoration Trust, 2007).

I am here, on behalf of both the Sussex Ouse Conservation Society (S.O.C.S.) and Ouse Angling Preservation Society (O.A.P.S.) providing a response in respect of the document "The Sussex Ouse a Vision for the 21st Century" (referred to in these note as the Vision Document) recently published by the Sussex Ouse Restoration Trust (S.O.R.T.). Only brief observations in relation to key issues are presented at this time and it should not be assumed that sections of the document not specifically referenced below are considered to be accurate. Reference is also made to the folding promotional leaflet which has also been published by S.O.R.T., where the content of the leaflet differs from that of the main Vision Document. By means of clarification, a limited number of additional observations are made in relation to issues raised by you, as Chairman of the Trust, in the course of your presentation at the John Harvey Tavern in Lewes on March 27th 2007, when the Vision Document and additional publicity leaflet were made available to those invited to the meeting. New text added to the S.O.R.T. website subsequent to the meeting is also addressed in these notes.

Before addressing the specifics of the Vision Document it is noted that both the name of the Organisation, the "Sussex Ouse Restoration Trust" and the text accompanying the S.O.R.T. logo (i.e. "Working in Harmony with the environment and local communities") are potentially open to misinterpretation. Bodies involved in river restoration are generally those which are engaged in habitat restoration per se; river restoration is an increasingly mature scientific discipline (a River Restoration Centre having been established in the UK), the objectives of which – to restore rivers to a more natural condition – are at odds with the objectives of S.O.R.T. which include the restoration not of the natural (i.e. pre-navigation era) environmental conditions of the Ouse but a return to a highly modified (i.e. unnatural) state which was a consequence of navigation works undertaken during the late 18th and early 19th centuries.

There are in fact a number of true river restoration projects (entailing realignment of the river to its original channel and other habitat enhancement works) which have been, or currently are, under consideration with respect to the Sussex Ouse. The adoption by S.O.R.T. of the statement "Working in harmony with the environment and local people" represents a further potential misrepresentation of the situation as while some organisations may potentially support navigation restoration others, including the Sussex Wildlife Trust, Sussex Ouse Conservation Society and Ouse Angling Preservation Society are, on the basis of foreseeable adverse environmental impacts, entirely opposed to any restoration of navigation, precluding any prospect of their "working in harmony" with S.O.R.T. whilst restoring navigation remains its objective.

Turning now to the specifics of the Vision Document, the following initial observations are provided. Text in ***bold and italics*** comprises direct quotes from the Vision Document (or in a few cases, where specified from the additional publicity leaflet or S.O.R.T. website):

Vision Document pg 2 para 2 ***"The Ouse in Lewes is a sadly neglected waterway. In places it is little more than an eyesore. When the tide is out there are ugly mudflats; when the tide is in it is a brown, brackish expanse with little use or beauty".***

Proponents of estuary barrages proposed (and in some cases subsequently constructed) have often, without realising their environmental significance, sought to promote the aesthetic benefits of permanently inundating "unsightly" or (to quote S.O.R.T.'s. choice of wording) "ugly" estuarine mudflats. Issues relating to the environmental significance of mudflats and the highly significant negative environmental impact that may result from their inundation by a barrage have been widely rehearsed over a period extending back more than 20 years although there is no indication that S.O.R.T. is aware of the relevant issues. To cite a single example, the implications of destroying mudflats were thoroughly addressed in the context of the Public Inquiry for the proposed River Usk (Newport) Barrage. One of the key reasons for the rejection of this scheme was that it would cause destruction of the mudflats, this along with other factors (including adverse impacts on the river's salmon stock) were considered to be at odds with sustainable development objectives. Indeed, a finding of the Usk Barrage Public Inquiry was that permanent flooding of the mudflats, in addition to its ecological impacts would comprise a negative landscape impact.

Mudflats are an integral element of the estuarine environment, and ecologically a highly significant habitat (they are biologically extremely productive and e.g. comprise feeding grounds for many species of waders and wildfowl). With respect to the Ouse, an issue is that, because the tidal river channel has been straightened and its channel confined by flood banks, its estuarine mudflats are limited in extent. Rather than seeking to eliminate those mudflats which are still extant, an organisation with a true environmental enhancement agenda would instead be seeking to increase their extent. The origin, and environmental significance, of mud estuarine environments are clearly not appreciated by S.O.R.T. Estuaries are flanked by mudflats as a consequence of entirely natural physical and physiochemical processes. Reduced water velocity in a river's most downstream stage, as a consequence of reduced gradient and it becoming subject to tidal influence, is one factor, another one being the natural flocculation of clay mineral particle when freshwater debouches into an increasingly saline estuarine environment. In freshwater, electrical charges on the surface of minutes clay mineral particles cause their mutual repulsion and act so as to keep them in suspension. On entering the increasingly saline water of an estuary, the increased ionic content of the water acts so as to neutralise the electrical charges on the surface of the clay mineral particles and reduced their repulsive properties, causing them to flocculate together. The resultant flocs are of sufficient mass that they no longer remain in suspension and are able to settle out and accumulate to form mudflats (although additional factors, including the previously mentioned altered flow regime within an estuary also contribute to the depositional environment). The ***"brown, brackish"*** water, deemed by S.O.R.T. to be an eyesore, is again an entirely natural phenomenon. The high turbidity levels often observed in estuaries again reflects the above physiochemical process, combined with a reworking and re-suspension of sediment due to tidal action. Brackish water is not, as appears to be implied, somehow undesirable, but forms an essential transitionary ecological zone between fresh water and a fully marine environment. In the context of the Ouse, as well as brackish water providing a habitat for a range of species particularly adapted to it (e.g. mullet and flounder), it provides an environment where sea trout smolts (young undergoing their seaward migration) can acclimatise to a new osmotic environment, which requires fundamental physiological adaptation (transitionary waters are specifically addressed by the EU Water Framework Directive; potential conflicts between the objectives of the Directive and S.O.R.T.S.'s own objectives are discussed further elsewhere in these notes).

With respect to the statements in the Vision Document (pg 2) that the Ouse is ***"undervalued"*** and that ***"Rivers in other parts of the country are cherished, are valued environmental amenities"*** (implying that the Sussex Ouse is not) we would urge S.O.R.T. to further consider the significant roles other organisations (including the two organisations which I am representing in drafting this submission) are already playing with respect to protecting and enhancing the environment and/or realising recreational and educational opportunities.

Pg 3 ***"Improved water depth would restore water meadows, boost fishing opportunities….A sympathetic and well- managed reinstatement of the navigation would enhance ecology and biodiversity whilst alleviating floods with additional upstream storage"***

These statements are all raised again elsewhere within the Vision Document and are addressed individually elsewhere within these notes. They are disputed.

Pg 4 ***"Improved angling facilities. To retain water for navigation, weirs will be provided or restored. These weirs will be designed and constructed to include fish passes to allow migratory fish to ascend to spawn. The retained water will provide a suitable habitat for coarse fish. Consequently both coarse and game fishing will be improved by the restoration of navigation to the river."***

Under the most recent (2003) round of designations under the EU Freshwater Fish Directive (78/659/EEC) the main stem of the Ouse from the Uck confluence upstream to Scaynes Hill STW was designated as a salmonid water (it had previously been designated as cyprinid. Salmonid fish are those of the salmon family, commonly known as game fish; in the case of the Ouse primarily sea and brown trout). Rivers afforded a salmonid designation should be able to support the entire life cycle of salmonid fish; not serve just as a migratory route for anadromous salmonids. For salmonids to reproduce successfully there must be areas where there is fast flowing water over gravel, in which the fish can deposit their eggs in excavations which are called redds. As a result of existing structures, such areas are limited within the main river, nevertheless there are a number of locations where salmonids (particularly sea trout) do spawn and S.O.C.S. has undertaken redd counts to establish which areas are utilized by migratory salmonids. There is

also a population of non-migratory brown trout. A restoration of navigation which impounded areas used for spawning (by sea or brown trout) would, by destroying the available salmonid spawning habitat, result in the main stem of the river no longer being able to support the entire life cycle of salmonid fish. Such a modification of the river would appear to be contrary to the spirit of the EU Freshwater Fish Directive. A substantial proportion of the spawning habitat within the Ouse catchment accessible to sea trout will be destroyed; the inevitable consequence of this will be a reduction in both the fish population and the quality of the recreational fishery which is dependant upon it. Additionally, from an angling perspective, fast flowing water, which the navigation scheme will eliminate, is also a prerequisite for certain game angling techniques. Through a combination of modifying both salmonid habitat and the angling characteristics of the river, game angling would assuredly not ***"be improved by the restoration of navigation to the river"*** and it is both inaccurate and highly misleading to state that this would be the case. As an incidental issue we seek for clarification as to by whom, and when, the photograph "Fly fishing on the Sussex Ouse" was taken. This clearly depicts both the O.A.P.S's. Barcombe Mill Pool fishery (on which the O.A.P.S. holds the freehold to the fishing rights) and an O.A.P.S. committee member. In my capacity as Hon Secretary of the Society I received no request for permission for this photograph to be used in the context of publicity for S.O.R.T..

With respect to the statement that ***"the retained water will provide a suitable habitat for coarse fish"*** this would appear to be an acknowledgement that there will be a shift away from a habitat suitable for salmonid (game) fish to one more suited to coarse (predominantly cyprinid) species. In addition to the incompatibility of this modification with the spirit of the Freshwater Fish Directive, as previously outlined, it would tend to favour coarse species which prefer slower flows such as bream, at the expense of those which are adapted to fast flowing water. The Ouse, especially above Sheffield Park Bridge, is an increasingly significant fishery for barbel, an extremely popular quarry with anglers and a species adapted to moderate to fast flowing water. Barbel, and other species which have a preference for faster flows, may decline if their preferred habitat is eliminated and, as is the case with game angling, the impoundment of the river will render it no longer a suitable venue for certain angling techniques. No reference is made to how boat traffic may affect anglers sport. An example of flawed logic with respect to how angling may be affected is additionally evident on the S.O.R.T. website, where, in the "Frequently Asked Questions" section, the response to the question "How will fishing be affected" is "This will be improved as the Trust has an experienced fisheries engineer as an advisor". Such an approach is essentially to deny that, if an appropriate specialist is engaged, there can be any adverse impact in relation to their particular sphere of expertise. By the same token, in a wider environmental assessment context, the approach seems to have been adopted, that so long as an appropriate expert is engaged, any adverse impact in respect of their area of specialism can somehow be avoided. This issue is discussed further in relation to pg 5 of the Vision Document.

While it is noted that in the vision document that ***"weirs will be designed…… to allow migratory fish to ascend the river to spawn"*** (although not specified, presumably a reference to sea trout) absolutely no reference is made to the fact that, as outlined above, main river salmonid spawning habitat will have been destroyed by the impoundment of the river. Additionally, in respect of fish passes, it is not only true migratory species which undertake significant upstream or downstream movements. In restricting the consideration of fish passes to ***"migratory fish"*** no consideration is afforded to the requirement of many coarse fish species to make more local movements e.g. to access suitable spawning areas.

Pg 5 ***"A full environmental analysis will be undertaken prior to any major works being undertaken on the river….This will identify all existing important flora and fauna habitats, that could be positively or adversely affected by the restoration and increased use of the waterway. The environmental analysis report will be referenced during restoration and conservation works to ensure that existing habitats are improved, protected or extended".***

The use of language and terminology here is imprecise and it is unclear whether the ***"full environmental analysis"*** will comprise a formal environmental assessment, leading to the production of an environmental statement (ES) although it is assumed that this may be the intended meaning. The fundamental purpose of environmental assessment is to provide the relevant Planning Authority with information on the environmental implications of a project submitted to it for approval – it is integral to the decision making process; the S.O.R.T. Vision Document appears to be predicated on the assumption that consent will be forthcoming and that the project will proceed. The assumption in the document that ***"The environmental***

analysis report will be referenced during restoration and construction works to ensure that existing habitats are improved, protected or extended" is flawed; two examples will suffice to demonstrate this, although there are numerous others which could be cited. Firstly, it appears to be an objective of S.O.R.T. to eliminate the "ugly" mud flats. As discussed previously, estuarine mudflats are a biologically important habitat and their intended permanent inundation would appear to be mutually exclusive to their being ***"improved, protected or extended"***. A second example is that the ecologically significant *Ranunculus/Calitriche* plant community, which is dependant on shallow, fast flowing water over a predominantly gravel bed, will have no available remaining ecological niche within the main river upon completion of restoration works. Indeed, the restoration will entail the destruction of, where present, the natural and biologically diverse (with respect to a range of biota, including plants, macroinvertebrates and fish) riffle –pool regime.

Environmental assessment when properly conducted is an objective process and it is inevitable that, in respect of S.O.R.T.'s navigation restoration proposal, the resulting environmental statement will identify a range of adverse ecological impacts, such as the examples detailed above, for which there may be no realistic mitigative measures. It will simply not be possible, by referring to such a report to ***"ensure that existing habitats are improved, protected or extended".***

"Restoration will provide a greater water area in the reaches above Sheffield Park. Improved water depth will allow for the reintroduction of riverside meadows in the upstream reaches where water levels have been dropped and where the channel is now steep sided."

There appears to be a fundamental misconception (which was also manifest in your presentation on 27th March) that a wide, deep watercourse is inherently more ecologically desirable than a narrow, predominantly shallow one, which is what, in its natural state, the upper reaches of the Sussex Ouse would be. From a true river restoration perspective (i.e. riverine habitat restoration as opposed to any restoration of navigation) it is the latter environment – a predominantly shallow, narrow, fast flowing river, with a well established pool/riffle sequence – which is the desired outcome. The aims of navigation restoration are thus diametrically opposed to those of river habitat restoration. With respect to ***"the reintroduction of waterside meadows",*** it is uncertain to what extent the Upper Ouse, prior to the navigation works, was flanked by this habitat type. Restoring a more natural flooding regime is, in appropriate locations, a valid objective of a true river restoration programme, however this could be achieved by the alternative measure of bed raising, rather than increasing water depth by constructing weirs. Caution must also be exercised in assuming that where the river channel is steep sided that this is not a natural (and hence desirable) feature. The Ouse intersects various Cretaceous deposits namely the Tunbridge Wells Sands, Wadhurst Clay, Weald Clay and Gault Clay. These friable, for the most part poorly consolidated, deposits naturally tend to erode to produce a steep sided, deeply incised, channel. Although in your presentation on 27th March you referred to the clay sided, un-vegetated, banks as an undesirable characteristic, it is nevertheless, in at least some locations, a natural one.

Other than a cursory statement that ***"A speed limit will prevent wash from boats from damaging the river banks"*** there is absolutely no reference to how the passage of boat traffic may have an environmental impact. In addition to increased turbidity due to the suspension of benthic sediments by boats, the operation of locks may, particularly under low summer flow conditions, cause intermittent interruption to flow, with associated ecological impacts. In fact no acknowledgement at all is made to how water quality may be impacted by either the physical alterations to the riverine habitat or the passage of boat traffic. The construction of new, or enlargement of existing structures will both increase the retention time and reduce the flow velocity of water in the river. This modification will lead, especially during warm summer conditions, to both increased water temperature and reduced dissolved oxygen levels. Both of these changes to fundamental water quality parameters will render the river a less suitable environment for a range of species, including salmonid fish.

A particular omission in the section of the Vision Document which refers to ecological enhancement is the absence of any reference to the EU Water Framework Directive (WFD). The response provided by you to a question following your presentation on 27th March indicated that S.O.R.T. was unaware of this highly significant piece of legislation, which effectively requires that by 2015 all rivers should be of "Good Ecological Status". This is generally interpreted as them being restored to a state at least close to their original one (which in the case of the Sussex Ouse would imply a return to its state prior to its modification

by the late 18th/early 19th century navigation works). WFD is currently going through a process of consultation/implementation; the environmental NGO (eNGO) sector is feeding into this process, with representatives from the Sussex Wildlife Trust and Sussex Ouse Conservation Society contributing to a core eNGO grouping. The precise measures which will be adopted to achieve good ecological status are currently under discussion; however it is entirely possible that **removal** of structures such as weirs will be one of the key measures adopted. This approach is completely contrary to S.O.R.T.S.'s objectives to **install** structures. We would strongly urge S.O.R.T. to consider the compatibility (or otherwise) of its objectives with those of WFD. The S.O.C.S. and SWT eNGO core grouping representatives are intending later this year to run a session looking specifically as to how WFD objectives may be realised within the Sussex Ouse catchment.

Overall, the stance adopted is that any potential adverse ecological impacts (and there are numerous ones that will result from implementation of a restoration of navigation) can somehow be avoided, the final sentence of pg 5 of the Vision Document being ***"All these measures will result in new, more diverse habitats for plants and animals."*** A similar approach is manifest in the additional text entitled ***"Vision Document Launched"*** which has been added to the S.O.R.T. website subsequent to the meeting on 27th March. This refers to S.O.R.T. seeking funding for ***"an initial feasibility study to show the economic and social benefits that will derive from it. That will then allow for a full environmental impact study to be done to ensure that any works undertaken are not detrimental to the long-term biodiversity and ecology of the river".*** As stated above, an objective environmental impact study will inevitably identify a range of adverse ecological impacts, for a number of which there will likely be no feasible mitigative measure. Certain of these ecological impacts will have **clearly identifiable economic and social disbenefits,** for example the reduction in the sea trout stock due to destruction of main river spawning habitat will damage the recreational fishery dependant upon the stock, with a consequent reduction in its capital value (the capital value of migratory salmonid fisheries is in part a function of the annual rod-catch. A diminution in the catch will lead to a reduction in the capital value of the fishery).

Pg 6 *"Flood alleviation - Restoring the river navigation will entail the building of replacement weirs where these have been lost and the repair of existing weirs to maintain a navigable depth. These works will improve water flow throughout the length of the non tidal river. The increase in depth will also improve the capacity of the river to store water in times of flood. Balancing ponds may be built in the upper reaches, or else the natural flooding of meadows at times of high flow will be reinstated. All of these measures should lead to an alleviation of the flooding further down the river towards Lewes that has occurred periodically in recent years".*

This a bold claim, but as it appears that no hydraulic modelling has been undertaken to determine its veracity, it must at present be regarded as entirely unsubstantiated and hence potentially misleading.

"One aim of the Trust is to promote and lobby for the provision of a tidal barrage south of Lewes."

While numerous estuary barrage schemes have been proposed in the UK only three have come to fruition; the Cardiff Bay Barrage (Rivers Taff and Ely); the Swansea (River Tawe) Barrage and the Tees Barrage (there is a fourth barrage impounding the River Wey, however the Wey is a minor stream, not directly comparable with either the rivers impounded by the three existing barrages, or the Ouse). We would urge S.O.R.T. to appraise itself of, and reflect upon, the well documented environmental problems that have arisen as a consequence of these projects. With respect to the Swansea Barrage, which is a design similar to that promoted by S.O.R.T. for the Ouse and thus directly comparable, a report produced by WWF, relatively soon after its commissioning, documented a range of adverse environmental impacts. Water quality problems have included both saline and thermal stratification (to the extent that the EA has required the impoundment to be drained on occasion) and tracking of migratory salmonids (salmon and sea trout) as they approach the structure has demonstrated that, although it is equipped with a fish pass, their upstream migration has been affected. The Cardiff Bay Barrage impoundment has also been subject to chronic water quality, and a range of other, environmental problems. It is difficult to envisage how the construction of a tidal barrage on the Ouse could be anything other than contrary to Water Framework Directive objectives with respect to transitional waters.

Pg 7 *"Partnership", "Next Steps", "Funding".*

While S.O.R.T., in listing potential partners and funders, makes no claim as to the agreed support of individual interested parties, the listings provided do imply the potential support of a number of organisations (including the Sussex Ouse Conservation Society and Ouse Angling Preservation Society) which are fundamentally opposed to any project which includes as an objective the restoration of navigation to the Sussex Ouse. Of additional concern is, under the heading of Funding, the penultimate source listed i.e. ***"The Wildlife Trusts".*** With the Wildlife Trusts being structured on a County basis, the only organisation to which this could logically apply is the Sussex Wildlife Trust (SWT). At the meeting on 27th March the representative of SWT, the Sussex Rivers and Otters Project Officer, informed the meeting that SWT would not entertain funding of the project as it had been outlined and that the inclusion within the document of ***"The Wildlife Trusts",*** and hence by implication the Sussex Wildlife Trust, was a source of concern. It is thus apparent that there is significant opposition to S.O.R.T.S.'s proposals amongst its perceived stakeholders (as listed on page 7 of the Vision Document) and, as it is stated in the document that ***"progress will only be possible with partnership and co-operation"*** we would urge S.O.R.T. to reconsider its objectives. So long as the restoration of navigation remains a fundamental objective there will be concerted opposition from organisations with a true environmental/conservation agenda. However, if S.O.R.T.S.'s objectives were restricted to the conservation and interpretation (in an industrial archaeology context) of the historic lock structures, so long as any such work was not linked to any restoration of navigation, and that appropriate environmental protection measures were implemented, the conservation bodies may adopt a different stance.

Pg 10 "***Constraints"*** The photograph at top right depicts the Montgomery Canal side pounds, constructed as a compensatory habitat when navigation was restored to the waterway. It is stated (in the caption illustrating the photograph) that ***"Two new side pounds were constructed into which the threatened plants and animals were moved prior to any construction work being started…..Works like this would be an integral part of any restoration of the Sussex Ouse Navigation should the need for them be dictated by a full ecological survey".***

The extrapolation of the Montgomery Canal approach to the Ouse is inappropriate. Both the canal and compensatory (in a habitat creation context) side pounds comprise essentially still water environments, rendering it appropriate to translocate species from one to the other. For a number of key species and communities in the Ouse, this approach is simply inappropriate. The most significant (from a biological conservation perspective) submerged aquatic macrophyte community is the *Ranunculus/Calitriche* (water crowfoot/starwort) community. This is the natural predominant community of the Ouse, but, being dependant on fast flowing water over a gravel bed, is currently restricted in its distribution, partly as a legacy of the 18th/19th century navigation works and their continuing influence on the rivers morphology. As a community which is reliant on fast flowing water it is simply impossible to re-establish it in an essentially stillwater off-line pound. With respect to many faunal components, the solution of off-line pounds is equally inappropriate. In a canal restoration context (and the Ouse is not a canal; it is a spate river with a particularly flashy catchment) the provision of off-line pounds may be an effective measure, particularly for species with limited motility, however certain key species present in the Ouse – lampreys for example – have complex life cycles and habitat requirements and for them an off-line pound is an entirely inappropriate compensatory measure.

"The most notable issues and requirements will be:

The co-operation of all riparian landowners along the course of the river.

-To give access for the restoration or new build of the necessary navigation structures

-To allow where possible for permissive footpaths to be created alongside the river where public rights of way do not already exist".

S.O.R.T. should recognise that in some cases fishing rights are separated from land rights, and that where this is the case the co-operation of the owners of the relevant fishing rights will also be required. We would bring to your attention that the fishing rights over the complex system of waters at Barcombe Mills (including the full length of the navigation cut which incorporates the sites of the Barcombe Mills upper and lower locks) are the freehold property of the Ouse Angling Preservation Society. The Society will not, under any circumstances, give its consent for works to restore the locks for purpose of navigation at this key point in the Navigation.

Additional observations specific to the folding publicity leaflet published by S.O.R.T.

As the publicity leaflet essentially comprises a summary of the Vision Document, the comments made above in respect of the main Vision Document apply equally to the publicity leaflet, where there is a duplication of material within the two documents. The leaflet does however include a specific listing of 7 bullet pointed objectives, which comprise the paragraph headings on pages 4, 5, and 6 of the Vision Document. This direct stating in the leaflet of benefits such as ***"Improved angling facilities"*** and ***"Ecological enhancement"*** without any qualification does seem to us to be potentially very misleading.

It is highly contradictory that, on one hand S.O.R.T. is making confident statements that environmental benefits may accrue from its "Vision", whilst, on the other hand, in the box titled ***"How you can help"*** it requests assistance from individuals who can ***"Advise on Environmental Matters".***

We trust you will appreciate from this response the extent of our concerns with respect to any potential restoration of navigation to the river. If it would be of use, we would be happy to meet with you to discuss any of the issues raised above, or indeed any other relevant issues. We would note that it is your proposals to restore navigation, and the associated impacts on the river, which are of concern. We would not object to work to conserve historic structures in an industrial archaeological and/or educational context, so long as such work was not linked to any restoration of navigation, and that appropriate environmental protection measures were put in place.

Yours sincerely

Dave Brown

For Sussex Ouse Conservation Society (as Scientific Advisor) and Ouse Angling Preservation Society (as Hon. Secretary)