



**Benefits Transfer Valuation Framework for Inland Waterways**

*AINA defines 'inland waterways' as including all navigable channels, navigable rivers and lakes, and all associated land and assets such as towpaths and amenity areas - in other words any land which has an impact on, or relationship with the [navigable] waterway.*

**The Welfare Value Framework captures Market Price and Consumer Surplus Values, to estimate the Total Economic Value of the benefits identified.**

The list of benefits presented over may appear to be missing important benefits such as physical and mental health benefits. Such benefits are referred to as 'cross-cutting' benefits and are in fact provided by other benefits in combination. In the case of health related benefits it might be recreation; quality of life improvements; community regeneration etc.

**See the Final Project Report for Guidance on how to use this Benefits Transfer Framework.**

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Reference to Guidance Section	Ecosystem Service Category	Category of Benefits	Benefit	Source of data	Quality of the study	Benefit consistency	Applicable to Total or Marginal Assessments	Valuation data				Aggregation		
								Value	Units	Type of Value	Adjustments	Beneficiaries	Physical data	Data Sources
6.1.1b	Provisioning	Economic	Property premium (new residential properties)	British Waterways (2008). The Public Benefit - A Measured Approach. (Literature Matrix ref. #31)	<b>M</b> - An evaluation of the total benefits delivered by waterways managed by BW. Wide ranging literature review; benefits aggregated up for total BW waterways to the UK as a whole. Some of the evidence is anecdotal; assumptions made in aggregating data are not always entirely clear.	<b>H</b> - The benefits consistency is high	The values should be applied to a marginal change - i.e. addition of new residential properties only.	18% (3% - 20%)	Percentage property value uplift on new residential waterside properties.	Income	The range can be applied for sensitivity purposes. Higher values apply to properties on or immediately adjacent to the waterway; values decrease with increasing distance from the waterway.	Private	Number and type of properties and sale prices.	Local estate agencies, Office for National Statistics, the Land Registry House Price Index.
				Powe, N., Willis, K., and Garrod, G. (2000). Assessing the Value of Quality Waterside Location. Stage 1 Report. Centre for Research in Environmental Appraisal and Management, University of Newcastle upon Tyne. December 2000. (Literature Matrix ref. #76)	<b>H</b> - A review of qualitative and quantitative studies which examine the links between quality waterside location and development. Methodologies reviewed such as revealed preference (repeat sales model, hedonic price model) and stated preference (contingent valuation).	<b>H</b> - The benefits consistency is high; average value not location specific.								
6.1.1b	Provisioning	Economic	Rental premium (office properties)	GHK (2007). The Economic Impact of Waterway Development Schemes: Volume 4. Final Report for British Waterways. (Literature Matrix ref. #15)	<b>M</b> - A review the economic impact of waterway development schemes using 6 case studies. All values are projected (i.e. predictions of future impacts).	<b>H</b> - The benefits consistency is high	The values can be applied to existing benefits (i.e. current offices) and marginal change (i.e. the addition of new offices).	0% - 10% (mean closer to 0%)	Percentage rental premium on waterfront office properties.	Income	The range can be applied for sensitivity purposes. Higher values apply to properties on or immediately adjacent to the waterway and to new offices (as opposed to existing offices). Values decrease with increasing distance from the waterway.	Private	Number of properties, level of sale price, characteristics of waterway development scheme, location, socio-economic characteristics of the area.	Local estate agencies, Office for National Statistics, the Land Registry.
6.1.1b	Provisioning	Economic	Property premium (all residential properties)	Jacobs-Gibb (2001). Chesterfield Canal Economic Assessment Study. Final Report for the Chesterfield Canal Partnership. (Literature Matrix ref. #102)	<b>H</b> - When compared to other Economic Impact Assessments, this seems to be one of the most thorough and systematic studies reviewed.	<b>H</b> - The benefits consistency is high.	These values should be applied to marginal changes in the condition of the waterway as specified.	25% (no water to fully navigational) 15% (non-navigational water to fully navigational) 15% (no water to fully navigational) 10% (non-navigational water to fully navigational) 10% (no water to fully navigational) 5% (non-navigational water to fully navigational)	Percentage property premium on properties on or directly adjacent to waterway. Percentage premium on properties within 100m of waterway. Percentage premium on properties within 500m of waterway.	Income	This study assessed benefits resulting from restoration options over 20 years in terms of impact on the local economy and net welfare benefits to the nation as a whole. This is a location-specific study; adjustments should be made with regard to the location, reference condition and socio-economic factors that characterise the study site. The magnitude of values will depend on the quality of the study site and the effect of the proposed change on the property prices.	Private	Number and type of properties and sale prices. Characteristics of the proposed change.	Local estate agencies, Office for National Statistics, the Land Registry House Price Index.
6.1.1b	Provisioning	Economic	Property premium (existing residential properties)	Willis, K. and Garrod G. (1994). An Economic Estimate of the Effect of a Waterside Location on Property Values, Environmental and Resource Economics, 4, 209-217. (Literature Matrix ref. #37)	<b>M/H</b> - This study is old (1994) and based on HP approach which looks at the price premium (PP) paid for properties located on or adjacent to a canal. The overall sample size is large (2,000). Data were missing for some explanatory variables. The model did not account for the quality of the waterways or the surrounding landscape. The estimates fit the data well with over 75% of the variation in each dependent variable being explained. This estimate has been generated by looking across a range of properties in a range of locations and it may not necessarily relate to PP paid for new properties which may be high spec developments, as PP for new developments have been found to be significantly higher.	<b>H</b> - This study assesses the proximity to a canal, however we are interested in all waterways. The significance of this is thought to be low. As the quality of the waterway or surrounding landscape are not included within the model, it might be possible to assume that the estimate provided is less location specific than would otherwise be the case if these attributes were included and therefore could be considered to be an average value across the range of locations and properties.	These values can be applied to assess the total benefit in terms of the existing housing stock.	1.5% - 5%	Percentage premium on existing residential properties.	Income	The upper value applies to more affluent areas, whereas the lower value can be applied as an average to account for variation in conditions and socio-economic characteristics.	Private	Number and type of properties and sale prices.	Local estate agencies, Office for National Statistics, the Land Registry House Price Index.
6.1.1c	Provisioning	Economic	Renewable energy provision	No valuation data available. See guidance Section 6.1.2 for carbon savings benefits.	-	-	-	-	-	-	-	-	-	-
6.1.1d (i)	Provisioning	Economic	Transport	DfT (2009a). NATA Refresh: Appraisal for a Sustainable Transport System.	<b>H</b> - Government policy document for appraisal.	<b>H</b> - The benefits consistency is high	The estimates can be used to value both the existing provision of cycling/walking journeys for commuting purposes that would otherwise be undertaken by car, and also any marginal changes in this provision as a result of a scheme.	£0.00 - £0.14 - Cycling (average congestion) £1.87 - £2.01 - Cycling (high congestion) £1.30 - £1.44 - Walking (high congestion) (2009 prices)	Value per km displaced from car to bicycle/walking.	A mixture	These values should be inflated to current prices, but no other adjustments are required. Government guidance is frequently reviewed and updated therefore values should be checked as such.	Public	Distance of commuter journeys displaced from car to bicycle.	Currently no physical data available, other than anecdotal evidence. Should therefore be calculated on a case-by case basis.
6.1.1d (ii)	Provisioning	Economic	Transport	DfT (2009b). Freight Mode Shift Benefits Values User Guide. 1st April 2009.	<b>H</b> - Government policy document for appraisal.	<b>H</b> - The benefits consistency is high	The estimates can be used to value both the existing provision of freight transport and also any marginal changes in this provision as a result of a scheme.	£0.86 - Motorway (high value) £0.07 - Motorway (standard) £0.74 - All A Roads £1.43 - All other roads £0.44 - Weighted average (2009 prices)	Value per mile displaced from road to water freight.	A mixture	These values should be inflated to current prices, but no other adjustments are required. Government guidance is frequently reviewed and updated therefore values should be checked as such.	Public	Distance of freight journey displaced from road to water.	Currently no physical data available, other than anecdotal evidence. Should therefore be calculated on a case-by case basis.
6.1.1e	Provisioning	Economic	Provision of water	British Waterways (2008). The Public Benefit - A Measured Approach. (Literature Matrix ref. #31)	<b>M</b> - An evaluation of the total benefits delivered by waterways managed by BW. Wide ranging literature review; benefits aggregated up for total BW waterways to the UK as a whole. Some of the evidence is anecdotal; assumptions made in aggregating data are not always entirely clear.	<b>M</b> - Different charges may apply to water supplied by waterways which are not under British Waterways' management.	The estimate can be used to value both the existing provision of water from the network and also any marginal changes resulting from a scheme.	£332.50 (2008 prices)	Value per MI of water supplied.	Total WTP (expenditure plus CS)	These values should be inflated to current prices, but no other adjustments are required.	Public	Volume of water supplied (MI). This multiplied by the total WTP value will give the total or marginal value of benefits.	Should be calculated on a case-by-case basis depending on the purpose of use and the alternate source of water displaced (e.g. grey water versus potable supply).
6.1.1f	Provisioning	Economic	Volunteering	British Waterways (2008). The Public Benefit - A Measured Approach. (Literature Matrix ref. #31)	<b>M</b> - An evaluation of the total benefits delivered by waterways managed by BW. Wide ranging literature review; benefits aggregated up for total BW waterways to the UK as a whole. Some of the evidence is anecdotal; assumptions made in aggregating data are not always entirely clear.	<b>H</b> - The benefits consistency is high	The estimates can be used to value the total existing benefit (cost savings) provided by volunteers and the marginal change in benefits where the number of volunteers changes as a result of a project or a scheme.	£50 - unskilled £150 - skilled £350 - professional (2008 prices)	Value of volunteer time per day.	Income	This study is a literature review producing UK - wide values. These should be adjusted to current prices; otherwise no further adjustments are required.	Public	Number of volunteers, total volunteer time.	Contact organising body/ British Waterways.
6.1.2a (i)	Regulating	Environment	Carbon emissions associated with renewable energy generation	DECC (2008). Greenhouse Gas Policy Evaluation and Appraisal in Government Departments.	<b>H</b> - Government policy on greenhouse gas evaluation - market price of carbon.	<b>H</b> - The benefits consistency is high	The unit value can be used to estimate total current benefits of renewable energy supplied and marginal changes arising from a specific scheme.	£16.72 (2008 prices)	Value per tonne of CO2.	Income	The actual price per tonne varies according to market conditions for the price of an emissions allowance. Where no 'live' data is available, projections should be used and uplifted to current prices accordingly. Government guidance is frequently reviewed and updated therefore values should be checked as such.	Public	Tonnes of CO2 emissions saved or off-set as a result of renewable energy.	Should be calculated on a case-by-case basis depending on the outputs of a scheme and the source of power that is offset.

Reference to Guidance Section	Ecosystem Service Category	Category of Benefits	Benefit	Source of data	Quality of the study	Benefit consistency	Applicable to Total or Marginal Assessments	Valuation data				Aggregation		
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6.1.2.a (ii)	Regulating	Environment	Carbon emissions associated with transport	DECC (2008). Greenhouse Gas Policy Evaluation and Appraisal in Government Departments.	H - Government policy on greenhouse gas evaluation - Shadow Price of Carbon (SPC).	H - The benefits consistency is high	The unit value can be used to estimate total current benefits of transport/green transport and marginal changes arising from a specific scheme.	£26.50 (2007 prices)	Value per tonne of CO2.	Damage cost	Value increases at 2% per year on top of inflation to account for rising damage costs over time. The value must also be uplifted to current prices. Government guidance is frequently reviewed and updated therefore values should be checked as such.	Public	Tonnes of CO2 emissions saved or off-set as a result of transport.	Should be calculated on a case-by-case basis depending on the change in number of journeys/distances resulting from a scheme and the type of transport displaced (e.g. 1000 car miles displaced). See IWAC (2008) "Decreasing our carbon footprint. Moving more freight onto the Inland Waterways of England and Wales. Inland Waterways Advisory Council" for unit savings per freight-tonne-km for water versus road freight. Also refer to navigation authorities or DfT's annual Waterborne Freight Statistics report for tonne-km data.
6.1.2.b	Regulating	Environment	Flood protection/alleviation	Woodward, R.T. and Wui, Y. (2001). The economic value of wetland services: a meta-analysis. Ecological Economics, 37(2001) p.257-270. (Literature Matrix ref. #54)	M - Meta analysis uses some studies that are now quite old, no background information/references provided for primary studies. Not always clear what is being valued.	M - Values derived for a range of services provided by wetland habitats.	The value estimated can be applied to value flood protection benefits currently provided by wetlands or the marginal change in wetland habitat resulting from a scheme where flood protection benefits are expected to arise.	£577 (£131 - £2,564) (1990 prices)	Value per hectare per year for flood protection.	CS	The extent to which flood protection is provided depends on the make-up of the habitat and its extent/location. The range should be applied to reflect cases where values are likely to be significantly larger or smaller than the average. The values should be adjusted to account for increases in real income over time using an adjustment factor of 0.7% per year. Note this increase does not account for changing preferences only time (i.e. placing greater value on the natural environment than was the case in previous years). The total value should then be uplifted to current prices.	Public	Hectares of wetland habitat.	Environment Agency, British Waterways, scheme-specific information.
6.1.2.c	Regulating	Environment	Water regulation and pollution dilution	Pretty, J.N., Mason, C.F., Nedwell, D.B., and Hine, R.E. (2002). A Preliminary Assessment of the Environmental Costs of the Eutrophication of Fresh Waters in England and Wales. Report for the Environment Agency. (Literature Matrix ref. #75)	M/H - May be out of date now	H - Visitor expenditure is a good indicator of value.	This value can be used in an assessment of the reduced value of water from eutrophication, or the benefits provided by reducing eutrophication in waterways used for abstraction.	£16.40 (2002 prices)	Average spend per visitor day to estimate the value loss due to water body closure.	Expenditure	These values should only be applied in cases where there is a significant and visible problem with eutrophication of the waterways. They can be applied to estimate the value lost as a result of eutrophication/pollution or the benefit of reversing the problem. Expenditure figures should be uplifted to current prices.	Private	Total number of day visits to the water body each year. Value loss function = total visits * frequency of closure (% of days) * average expenditure per day visit	There are a range of surveys available which estimate visitor numbers, for instance the UK Tourism Survey or the British Waterways Information Visitors Surveys.
								10%	Property value loss for properties adjacent to eutrophic waterways.	Income			Number of properties affected. Value loss function = number of properties * frequency of loss value due to eutrophication * average percentage value loss.	
6.1.2.d	Regulating	Environment	Water Quality Improvements	Georgiou, S., Bateman, I.J., Cole, M. and Hadley, D. (2000). Contingent Ranking and Valuation of River Water Quality Improvements: Testing for Scope Sensitivity, Ordering and Distance Decay Effects. CSERGE Working Paper GEC2000-18. (Literature Matrix ref. #142)	H - This study was deemed to meet most of the basic and preferred requirements of a robust valuation study. Income constraints, potential biases, and treatment of zero/protest/outlier bids were dealt with. One of the few studies to analyse distance decay.	M - The improvement in water quality is expected to provide a range of benefits. It is not immediately clear what the respondent values most (improved fishing, improved biodiversity; improved boating and swimming), however the paper suggests that the importance of protecting the environment was the main reason given for stating a positive WTP. It is therefore assumed that this value can broadly be attributed to a WTP for the protection of the water environment and the associated range of regulating services.	These values should only be used where changes in water quality are considered broadly equivalent to those valued here. These changes might be reflected under the WFD as follows: <b>Small</b> = from very poor to poor/moderate status <b>Medium</b> = from very poor to moderate/good status <b>Large</b> = from very poor to good/high status.	£7.6 - £8.64 (small improvement) £12.07 - £21.34 (medium improvement) £18.12 - £31.50 (large improvement) (2000 prices)	WTP per household per year for an improvement in water quality.	WTP	The lower estimates were generated by contingent valuation methods and the upper estimate by contingent ranking. It is recommended that the range is used for sensitivity testing. Values should be adjusted for changes in real income by applying a factor of 0.7% per year for every year that has passed since the study was undertaken (in 2000). The final values should then be uplifted to current prices.	Public	Population data (in number of households). Distance decay was analysed as part of the study and found that WTP for large improvements should be aggregated across a 36 mile radius of the site; small improvements across a 17 mile radius. For a medium improvement, the middle value of 27 miles could be applied.	Office of National Statistics.
6.1.3.a/b	Cultural	Recreation (land and water based)	All users	Willis, K. G. and G. Garrod, (1991) Valuing Open Access Recreation on Inland Waterways: On-site Recreation Surveys and Selection Effects, Regional Studies, 25(6), 511-524. (Literature Matrix ref. #43)	M - This study is old, however it is still heavily quoted in the literature. The fact that substitute sites were not discussed may have resulted in the values being over-estimated. However the modelling approach selected produced values that were considered to be lower-bound estimates.	M - The benefits are considered to be well matched to the benefit category considered here. However the fact that the benefits in this study are location specific and shown to be highly variable by location may mean that it is less appropriate for general or non-site specific transfers.	The unit value can be used for an assessment of current benefits.	£0.02 - £0.09 - Locals (<10 miles) £0.22 - £10.94 - Non locals (>10 miles) (1989 prices)	Consumer surplus per visitor for all users.	CS	The values vary a great deal by location, most likely relating to the profile of the visitors and the quality of the site. Unless the policy site is similar to one of the original study sites, it is recommended that the range is used for sensitivity testing. The values should be adjusted to account for real increases in income by applying an adjustment factor of 0.7% increase for every year that has passed since the study took place (in 1989). The values should then be uplifted to current prices. For locations where it is expected that the presence of boating activity is likely to have a significant impact on visitor enjoyment, CS values could be inflated by a further 25%.	Public	Visitor / User Numbers	There are a range of surveys available which estimate visitor numbers, for instance the UK Tourism Survey or the British Waterways Information Visitors Surveys. Where no information is available, refer to the Benefits Assessment Guidance (2003) for methods to estimate visitor numbers.
				British Waterways (2008). Inland Waterways Day Visit Survey. (Literature Matrix ref. N/A).	H - This is a recent survey of visitors to locations operated by British Waterways.	H - The benefits consistency is high	The expenditure values can be combined with CS values to estimate the total WTP for this activity. The estimates can be used to value both marginal changes in recreational benefits or the total value of current benefits.	£5.57 (2008 prices)	Reported expenditure (mean value) for all visitors.	Expenditure	The values should be updated to current prices. They are for use in a cost-benefit analysis where WTP estimates are sought. If they are used in an EcIA, they should be adjusted for displacement, leakage and multiplier effects.	Public	Visitor / User Numbers	There are a range of surveys available which estimate visitor numbers, for instance the UK Tourism Survey or the British Waterways Information Visitors Surveys.

Reference to Guidance Section	Ecosystem Service Category	Category of Benefits	Benefit	Source of data	Quality of the study	Benefit consistency	Applicable to Total or Marginal Assessments	Valuation data				Aggregation				
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6.1.3.a/b	Cultural	Recreation (land based)	Walking	Willis, K. G. and G. Garrod, (1991) Valuing Open Access Recreation on Inland Waterways: On-site Recreation Surveys and Selection Effects, Regional Studies, 25(6), 511-524. (Literature Matrix ref. #43)	<b>M</b> - This study is old, however it is still heavily quoted in the literature. The fact that substitute sites were not discussed may have resulted in the values being over-estimated. However the modelling approach selected produced values that were considered to be lower-bound estimates.	<b>M</b> - The benefits are considered to be well matched to the benefit category considered here. However the fact that the benefits in this study are location specific and shown to be highly variable by location may mean that it is less appropriate for general or non-site specific transfers.	The unit values can be used for an assessment of current non-market benefits associated with walking/ dog walking or a marginal change in benefits as a result of a scheme.	£0.08 - £0.40 - £0.63 for walking (1989 prices)	Consumer surplus per visitor for walking/dog walking visits (additional to expenditure).	CS	For general walking, the lower value relates to semi-rural areas, the middle value to rural areas and the high value to urban areas. For dog walking, the upper bound estimate relates to primarily rural locations and the lower bound to semi-rural locations. Due to the age of the original study and the relatively small sample sizes at each location, it is recommended that the range is used. The values should be adjusted to account for real increases in income by applying an adjustment factor of 0.7% increase for every year that has passed since the study took place (in 1989). The values should then be uplifted to current prices.	Public	Visitor / User Numbers	There are a range of surveys available which estimate visitor numbers, for instance the UK Tourism Survey or the British Waterways Information Visitors Surveys.		
				Willis, K.G., and Garrod, G.D. (1990). The individual travel-cost method and the value of recreation: the case of the Montgomery and Lancaster Canals. Environment and Planning C: Government and Policy, 8, 315-326. (Literature Matrix ref. #88)	<b>M/H</b> - No measurement of income included - thus travel cost measured in terms of distance cost and opportunity cost of travel time as estimated by average earnings in Great Britain. No mention of other socio-economic characteristics. Used truncated regression to take account for people who choose not to visit the canal or visit less than once per year - avoids problem of bias toward positive responses which is inherent in TCM.	<b>H</b> - The benefits consistency is high		£0.03 - £0.33 for dog walking (1989 prices)								
				GHK (2005). The Bedford Milton Keynes Waterway - Cost-Benefit Appraisal. Final Report for British Waterways. (Literature Matrix ref. #16)	<b>M/H</b> - This is a reasonably robust EcIA with appropriate adjustments considered/undertaken. Some values are inadequately referenced or explained.	<b>H</b> - The benefits consistency is high	The data can be used to assess the costs and benefits of the creation of a new waterway.	£5.00 (2005 prices)	Average spend per visit for walking/dog walking visits.	Expenditure	Values should be adjusted to reflect current prices. The location and importance of the new waterway will have a significant weight on the value. Canals that are bound to generate economic activity in the form of tourism, freight transport, property prices, creation of employment positions, will generally have a higher value. This study estimated a displacement effect; i.e. additional expenditure was counter-balanced by reduced expenditure elsewhere in the area.	Public	Visitor / User Numbers	There are a range of surveys available which estimate visitor numbers, for instance the UK Tourism Survey or the British Waterways Information Visitors Surveys.		
				British Waterways (2008). Inland Waterways Day Visit Survey. (Literature Matrix ref. N/A).	<b>H</b> - This is a recent survey of visitors to locations operated by British Waterways.	<b>H</b> - The benefits consistency is high	The expenditure values can be combined with CS values to estimate the total WTP for this activity. The estimates can be used to value both marginal changes in recreational benefits or the total value of current benefits.	£3.37 (2008 prices)	Reported expenditure (mean value) for walking/rambling visits.	Expenditure	The values should be updated to current prices. They are for use in a cost-benefit analysis where WTP estimates are sought. If they are used in an EcIA, they should be adjusted for displacement, leakage and multiplier effects.	Public	Visitor / User Numbers	There are a range of surveys available which estimate visitor numbers, for instance the UK Tourism Survey or the British Waterways Information Visitors Surveys.		
								£6.05 (2008 prices)	Reported expenditure (mean value) for dog walking visits.	Expenditure						
6.1.3.a/b	Cultural	Recreation (land based)	Short-cut taking	Willis, K. G. and G. Garrod, (1991) Valuing Open Access Recreation on Inland Waterways: On-site Recreation Surveys and Selection Effects, Regional Studies, 25(6), 511-524. (Literature Matrix ref. #43)	<b>M</b> - This study is old, however it is still heavily quoted in the literature. The fact that substitute sites were not discussed may have resulted in the values being over-estimated. However the modelling approach selected produced values that were considered to be lower-bound estimates.	<b>M</b> - The benefits are considered to be well matched to the benefit category considered here. However the fact that the benefits in this study are location specific and shown to be highly variable by location may mean that it is less appropriate for general or non-site specific transfers.	The unit values can be used to assess current non-market benefits associated with short-cut taking or a marginal change in benefits as a result of a scheme.	£0.07 - £0.36 (1989 prices)	Consumer surplus per visitor for short-cut taking.	CS	The values should be adjusted to account for real increases in income by applying an adjustment factor of 0.7% increase for every year that has passed since the study took place (in 1989). The values should then be uplifted to current prices.	Public	Visitor / User Numbers	There are a range of surveys available which estimate visitor numbers, for instance the UK Tourism Survey or the British Waterways Information Visitors Surveys.		
6.1.3.a/b	Cultural	Recreation (land based)	Cycling	Willis, K. G. and G. Garrod, (1991) Valuing Open Access Recreation on Inland Waterways: On-site Recreation Surveys and Selection Effects, Regional Studies, 25(6), 511-524. (Literature Matrix ref. #43)	<b>M</b> - This study is old, however it is still heavily quoted in the literature. The fact that substitute sites were not discussed may have resulted in the values being over-estimated. However the modelling approach selected produced values that were considered to be lower-bound estimates.	<b>M</b> - The benefits are considered to be well matched to the benefit category considered here. However the fact that the benefits in this study are location specific and shown to be highly variable by location may mean that it is less appropriate for general or non-site specific transfers.	The unit value can be used for an assessment of current non-market benefits associated with cycling or a marginal change in benefits as a result of a scheme.	£0.31 (1989 prices)	Consumer surplus per visitor for cycling visits.	CS	The value for cycling was generated using a contingent valuation survey method and was only estimated at one canal site. This value should therefore be used as a 'ball park' estimate only. The values should be adjusted to account for real increases in income by applying an adjustment factor of 0.7% increase for every year that has passed since the study took place (in 1989). The values should then be uplifted to current prices.	Public	Visitor / User Numbers	There are a range of surveys available which estimate visitor numbers, for instance the UK Tourism Survey or the British Waterways Information Visitors Surveys.		
				Ecotec (2006). An Economic Evaluation of the Restoration of the Kennet and Avon Canal: An Update of the 2002 Study. (Literature Matrix ref. #13)	<b>M/H</b> - An update of an original EcIA of a canal restoration project. This report examines the economic benefits from property development and increased tourism and leisure activity in terms of welfare gain and increased expenditure/employment resulting from a restoration project. Tourism demand model used to assess changes due to restoration project. Also compares against recent/current investments.	<b>H</b> - The benefits consistency is High. Average value, not location specific.	The value can be used for the assessment of both current benefits with regard to cycling along canals and benefits resulting from restoration works on canals.	£5.00 - £7.00 (2004 prices)	Visitor expenditure per trip (incl travel).	Expenditure	The resulting value will depend highly on the location and the attributes of the canal under assessment. Prices should be uplifted to current prices.	Public	Visitor / User Numbers	There are a range of surveys available which estimate visitor numbers, for instance the UK Tourism Survey or the British Waterways Information Visitors Surveys. Cycling clubs and local authorities may hold more cycling- specific information.		
				GHK (2005). The Bedford Milton Keynes Waterway - Cost-Benefit Appraisal. Final Report for British Waterways. (Literature Matrix ref. #16)	<b>M/H</b> - This is a reasonably robust EcIA with appropriate adjustments considered/undertaken. Some values are inadequately dereference or explained.	<b>H</b> - The benefits consistency is high			Average spend per visit.	Expenditure	The resulting value will depend highly on the location and the attributes of the canal under assessment. Prices should be uplifted to current prices.	Public	Visitor / User Numbers	There are a range of surveys available which estimate visitor numbers, for instance the UK Tourism Survey or the British Waterways Information Visitors Surveys. Cycling clubs and local authorities may hold more cycling- specific information.		
				British Waterways (2008). Inland Waterways Day Visit Survey. (Literature Matrix ref. N/A).	<b>H</b> - This is a recent survey of visitors to locations operated by British Waterways.	<b>H</b> - The benefits consistency is high	The expenditure values can be combined with CS values to estimate the total WTP for this activity. The estimates can be used to value both marginal changes in recreational benefits or the total value of current benefits.	£4.40 (2008 prices)	Reported expenditure (mean value) for cycling visits.	Expenditure	The values should be updated to current prices. They are for use in a cost-benefit analysis where WTP estimates are sought. If they are used in an EcIA, they should be adjusted for displacement, leakage and multiplier effects.	Public	Visitor / User Numbers	There are a range of surveys available which estimate visitor numbers, for instance the UK Tourism Survey or the British Waterways Information Visitors Surveys.		

Reference to Guidance Section	Ecosystem Service Category	Category of Benefits	Benefit	Source of data	Quality of the study	Benefit consistency	Applicable to Total or Marginal Assessments	Valuation data				Aggregation		
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6.1.3.a/b	Cultural	Recreation (water based)	Boating	Willis, K. G. and G. Garrod, (1991) Valuing Open Access Recreation on Inland Waterways: On-site Recreation Surveys and Selection Effects, Regional Studies, 25(6), 511-524. (Literature Matrix ref. #43)	<b>M</b> - This study is old, however it is still heavily quoted in the literature. The fact that substitute sites were not discussed may have resulted in the values being over-estimated. However the modelling approach selected produced values that were considered to be lower-bound estimates.	<b>M</b> - The benefits are considered to be well matched to the benefit category considered here. However the fact that the benefits in this study are location specific and shown to be highly variable by location may mean that it is less appropriate for general or non-site specific transfers.	Data can be used for both an assessment of current benefits and of benefits resulting from a given change.	£0.165 - £0.45 (1989 prices)	Consumer surplus per visitor for boating visits.	CS	Values must be adjusted from 1989 to current prices. The location must be considered: lower value applies to urban and semi-rural sites, upper value to rural sites.	Public	Visitor / User Numbers	There are a range of surveys available which estimate visitor numbers, for instance the UK Tourism Survey or the British Waterways Information Visitors Surveys. Boating clubs on specific sites may also be able to provide information.
				GHK (2005). The Bedford Milton Keynes Waterway - Cost-Benefit Appraisal. Final Report for British Waterways. (Literature Matrix ref. #16)	<b>M/H</b> - This is a reasonably robust EcIA with appropriate adjustments considered/undertaken. Some values are inadequately referenced or explained.	<b>H</b> - The benefits consistency is high		£14.49 - £38.00 boating - hired	Average spend per visitor for boating visits.	Expenditure	Values should be uplifted to current prices. If used in an Economic Impact Assessment, appropriate adjustments should be made for displacement, leakage and multiplier effects.	Public	Visitor / User Numbers	There are a range of surveys available which estimate visitor numbers, for instance the UK Tourism Survey or the British Waterways Information Visitors Surveys. Boating clubs on specific sites may also be able to provide information.
				Jacobs-Gibb (2001). Chesterfield Canal Economic Assessment Study. Final Report for the Chesterfield Canal Partnership. (Literature Matrix ref. #102)	<b>H</b> - When compared to other Economic Impact Assessments, this seems to be one of the most thorough and systematic studies reviewed.	<b>H</b> - The benefits consistency is high	Data can be used for both an assessment of current benefits and of benefits resulting from a given change.	£11.00 boating - privately owned (2004 prices)			The values should be updated to current prices. They are for use in a cost-benefit analysis where WTP estimates are sought. If they are used in an EcIA, they should be adjusted for displacement, leakage and multiplier effects.	Public	Visitor / User Numbers	There are a range of surveys available which estimate visitor numbers, for instance the UK Tourism Survey or the British Waterways Information Visitors Surveys.
				British Waterways (2008). Inland Waterways Day Visit Survey. (Literature Matrix ref. N/A).	<b>H</b> - This is a recent survey of visitors to locations operated by British Waterways.	<b>H</b> - The benefits consistency is high	The expenditure values can be combined with CS values to estimate the total WTP for this activity. The estimates can be used to value both marginal changes in recreational benefits or the total value of current benefits.	£9.50 - powered boats £3.46 - unpowered boats (2008 prices)	Reported expenditure (mean value) for powered and unpowered boating visits.	Expenditure	The values should be updated to current prices. They are for use in a cost-benefit analysis where WTP estimates are sought. If they are used in an EcIA, they should be adjusted for displacement, leakage and multiplier effects.	Public	Visitor / User Numbers	There are a range of surveys available which estimate visitor numbers, for instance the UK Tourism Survey or the British Waterways Information Visitors Surveys.
6.1.3.b	Cultural	Recreation (water based)	Canoeing/ kayaking	Ecotec (2006). An Economic Evaluation of the Restoration of the Kennet and Avon Canal: An Update of the 2002 Study. (Literature Matrix ref. #13)	<b>M/H</b> - An update of an original EcIA of a canal restoration project. This report examines the economic benefits from property development and increased tourism and leisure activity in terms of welfare gain and increased expenditure/employment resulting from a restoration project. Tourism demand model used to assess changes due to restoration project. Also compares against recent/current investments.	<b>H</b> - The benefits consistency is High. Average value, not location specific.	The estimate can be applied to value both marginal changes in the number of beneficiaries or the total value of those currently benefiting from the activity.	£3.14 - £5.00 (2004 prices)	Average spend per visitor for canoeing/kayaking visits.	Expenditure	Values should be uplifted to current prices. If used in an Economic Impact Assessment, appropriate adjustments should be made for displacement, leakage and multiplier effects.	Public	Visitor / User Numbers	There are a range of surveys available which estimate visitor numbers, for instance the UK Tourism Survey or the British Waterways Information Visitors Surveys. Canoeing/ kayaking clubs or associations that are located on the study site may be able to provide relevant information.
				GHK (2005). The Bedford Milton Keynes Waterway - Cost-Benefit Appraisal. Final Report for British Waterways. (Literature Matrix ref. #16)	<b>M/H</b> - This is a reasonably robust EcIA with appropriate adjustments considered/undertaken. Some values are inadequately referenced or explained.	<b>H</b> - The benefits consistency is high								
6.1.3b	Cultural	Recreation (land base)	Visits to leisure/heritage/museum sites	British Waterways (2008). Inland Waterways Day Visit Survey. (Literature Matrix ref. N/A).	<b>H</b> - This is a recent survey of visitors to locations operated by British Waterways.	<b>H</b> - The benefits consistency is high	The expenditure values can be combined with CS values to estimate the total WTP for this activity. The estimates can be used to value both marginal changes in recreational benefits or the total value of current benefits.	£9.79 (2008 prices)	Reported expenditure (mean value) for visits to leisure/heritage/museum sites.	Expenditure	The values should be updated to current prices. They are for use in a cost-benefit analysis where WTP estimates are sought. If they are used in an EcIA, they should be adjusted for displacement, leakage and multiplier effects.	Public	Visitor / User Numbers	There are a range of surveys available which estimate visitor numbers, for instance the UK Tourism Survey or the British Waterways Information Visitors Surveys.
6.1.3b	Cultural	Recreation (land base)	Visiting pubs	British Waterways (2008). Inland Waterways Day Visit Survey. (Literature Matrix ref. N/A).	<b>H</b> - This is a recent survey of visitors to locations operated by British Waterways.	<b>H</b> - The benefits consistency is high	The expenditure values can be combined with CS values to estimate the total WTP for this activity. The estimates can be used to value both marginal changes in recreational benefits or the total value of current benefits.	£8.25 (2008 prices)	Reported expenditure (mean value) for visits to pubs.	Expenditure	The values should be updated to current prices. They are for use in a cost-benefit analysis where WTP estimates are sought. If they are used in an EcIA, they should be adjusted for displacement, leakage and multiplier effects.	Public	Visitor / User Numbers	There are a range of surveys available which estimate visitor numbers, for instance the UK Tourism Survey or the British Waterways Information Visitors Surveys.
6.1.3.b	Cultural	Recreation (land based)	Running/jogging	British Waterways (2008). Inland Waterways Day Visit Survey. (Literature Matrix ref. N/A).	<b>H</b> - This is a recent survey of visitors to locations operated by British Waterways.	<b>H</b> - The benefits consistency is high	The estimates can be used to value both marginal changes in recreational benefits or the total value of current benefits.	£2.91 (2008 prices)	Reported expenditure (mean value) for running/jogging visits.	Expenditure	The values should be updated to current prices. They are for use in a cost-benefit analysis where WTP estimates are sought. If they are used in an EcIA, they should be adjusted for displacement, leakage and multiplier effects.	Public	Visitor / User Numbers	There are a range of surveys available which estimate visitor numbers, for instance the UK Tourism Survey or the British Waterways Information Visitors Surveys.
6.1.3.b	Cultural	Recreation (land based)	Visits 'to get somewhere'	British Waterways (2008). Inland Waterways Day Visit Survey. (Literature Matrix ref. N/A).	<b>H</b> - This is a recent survey of visitors to locations operated by British Waterways.	<b>H</b> - The benefits consistency is high	The estimates can be used to value both marginal changes in recreational benefits or the total value of current benefits.	£10.52 (2008 prices)	Reported expenditure (mean value) for visits 'to get somewhere'.	Expenditure	The values should be updated to current prices. They are for use in a cost-benefit analysis where WTP estimates are sought. If they are used in an EcIA, they should be adjusted for displacement, leakage and multiplier effects.	Public	Visitor / User Numbers	There are a range of surveys available which estimate visitor numbers, for instance the UK Tourism Survey or the British Waterways Information Visitors Surveys.

Reference to Guidance Section	Ecosystem Service Category	Category of Benefits	Benefit	Source of data	Quality of the study	Benefit consistency	Applicable to Total or Marginal Assessments	Valuation data				Aggregation		
								Value	Units	Type of Value	Adjustments	Beneficiaries	Physical data	Data Sources
6.1.3 b	Cultural	Recreation (land based)	Informal use - day visits	Glaves, P. Rotherham, I.D., Harrison, K., and Egan, D. (2007). An initial review of the Economic and other benefits of Inland Waterways. Summary of Literature and Information review with recommendations. Hallam Environmental Consultants Ltd and Tourism and Environmental Change Research Unit. (Literature Matrix ref. #29).	<b>M</b> - A literature review of over 200 reports into inland waterways assets, uses and the benefits gained. Some of the figures are inadequately explained/referenced.	<b>H</b> - The benefits consistency is high	Data can be used for an assessment of current benefits or a change in recreational benefits as the result of a scheme/improvement.	£3.84 - £4.50 (2004 prices)	Average spend per visitor (informal recreation - day visits).	Expenditure	The values should be updated to current prices. They are for use in a cost-benefit analysis where WTP estimates are sought. If they are used in an EcIA, they should be adjusted for displacement, leakage and multiplier effects.	Public	Visitor / User Numbers	There are a range of surveys available which estimate visitor numbers, for instance the UK Tourism Survey or the British Waterways Information Visitors Surveys.
				Ecotec (2006). An Economic Evaluation of the Restoration of the Kennet and Avon Canal: An Update of the 2002 Study. (Literature Matrix ref. #13)	<b>M/H</b> - An update of an original EcIA of a canal restoration project. This report examines the economic benefits from property development and increased tourism and leisure activity in terms of welfare gain and increased expenditure/employment resulting from a restoration project. Tourism demand model used to assess changes due to restoration project. Also compares against recent/current investments.	<b>H</b> - The benefits consistency is high. Average value, not location specific.								
				British Waterways (2008). Inland Waterways Day Visit Survey. (Literature Matrix ref. N/A).	<b>H</b> - This is a recent survey of visitors to locations operated by British Waterways.	<b>H</b> - The benefits consistency is high	The expenditure values can be combined with CS values to estimate the total WTP for this activity. The estimates can be used to value both marginal changes in recreational benefits or the total value of current benefits.	£3.15 (2008 prices)	Reported expenditure (mean value) for 'sitting or standing' visitors.	Expenditure	The values should be updated to current prices. They are for use in a cost-benefit analysis where WTP estimates are sought. If they are used in an EcIA, they should be adjusted for displacement, leakage and multiplier effects.	Public	Visitor / User Numbers	There are a range of surveys available which estimate visitor numbers, for instance the UK Tourism Survey or the British Waterways Information Visitors Surveys.
				British Waterways (2008). Inland Waterways Day Visit Survey. (Literature Matrix ref. N/A).	<b>H</b> - This is a recent survey of visitors to locations operated by British Waterways.	<b>H</b> - The benefits consistency is high	The expenditure values can be combined with CS values to estimate the total WTP for this activity. The estimates can be used to value both marginal changes in recreational benefits or the total value of current benefits.	£4.07 (2008 prices)	Reported expenditure (mean value) for 'other' day visitors.	Expenditure	The values should be updated to current prices. They are for use in a cost-benefit analysis where WTP estimates are sought. If they are used in an EcIA, they should be adjusted for displacement, leakage and multiplier effects.	Public	Visitor / User Numbers	There are a range of surveys available which estimate visitor numbers, for instance the UK Tourism Survey or the British Waterways Information Visitors Surveys.
6.1.3.b	Cultural	Recreation (land based)	Informal use - overnight visits	Ecotec (2006). An Economic Evaluation of the Restoration of the Kennet and Avon Canal: An Update of the 2002 Study. (Literature Matrix ref. #13)	<b>M/H</b> - An update of an original EcIA of a canal restoration project. This report examines the economic benefits from property development and increased tourism and leisure activity in terms of welfare gain and increased expenditure/employment resulting from a restoration project. Tourism demand model used to assess changes due to restoration project. Also compares against recent/current investments.	<b>M</b> - The benefit of overnight visits are likely to not be entirely attributable to the presence of the waterway.	Data can be used for an assessment of current benefits or a change in recreational benefits as the result of a scheme/improvement.	£55 (2004 prices)	Average spend per visitor (informal recreation - overnight visits).	Expenditure	The values should be updated to current prices. They are for use in a cost-benefit analysis where WTP estimates are sought. If they are used in an EcIA, they should be adjusted for displacement, leakage and multiplier effects.	Public	Visitor / User Numbers	There are a range of surveys available which estimate visitor numbers, for instance the UK Tourism Survey or the British Waterways Information Visitors Surveys.
6.1.3 c	Cultural	Recreation (land based)	Informal use - improvements to access	British Waterways (2008). The Public Benefit - A Measured Approach. (Literature Matrix ref. #31)	<b>M</b> - An evaluation of the total benefits delivered by waterways managed by BW. Wide ranging literature review; benefits aggregated up for total BW waterways to the UK as a whole. Some of the evidence is anecdotal; assumptions made in aggregating data are not always entirely clear.	<b>H</b> - The benefits consistency is high	The values derived from this study with reference to informal recreation can be used to value access and recreation improvements (additional to expenditure).	£1.98 (2003 prices)	WTP per visit for improvements.	WTP	An evaluation of the total benefits delivered by waterways managed by BW. Wide ranging literature review; benefits aggregated for total BW waterways to the UK as a whole. Values should be updated to current prices. The socio-economic factors and the reference condition of the study site should be considered.	Public	Visitor / User Numbers	There are a range of surveys available which estimate visitor numbers, for instance the UK Tourism Survey or the British Waterways Information Visitors Surveys.
6.1.3 b/d	Cultural	Recreation (water based)	Angling	Spurgeon, J., Colarullo, G., Radford, A.F., and Tingley, D. 2001. Economic Valuation of Inland Fisheries, Model B: Indirect Economic Values Associated with Fisheries, R&D Project Record, W2-039/PR/2 prepared for the Environment Agency. (Literature Matrix ref. #104)	<b>M/H</b> - This study was assessed to meet all of the basic and most of preferred requirements of a robust valuation study. A pilot survey was undertaken on 10 individuals and the information provided was clear and unambiguous, visual aids used effectively. Note relatively high level of zero or protest bids (477) - however these were treated as zero or omitted as appropriate.	<b>H</b> - These values are specific to anglers in England and Wales.	Data can be used to value both current benefits a marginal change (improvement or loss) arising from an activity or scheme.	£15.70 coarse angling - canal £19.40 coarse angling - lake £21.10 coarse angling - river £30.10 game angling - lake £30.30 game angling - river (2001 prices)	Value per angling trip.	Total WTP (CS and Expenditure)	Values should be adjusted to current prices. If there is no information available as to number of angling visits by these specific types, it is recommended that the values for coarse fishing are applied as a conservative estimate.	Public	Visitor / User Numbers	There are a range of surveys available which estimate visitor numbers, for instance the UK Tourism Survey or the British Waterways Information Visitors Surveys. Site specific information may also be available from local fishing clubs. Where visitor data is not available, users may refer to the Benefit Assessment Guidance (Environment Agency, 2003, see Part Two - Rivers and Groundwater).
				British Waterways (2008). Inland Waterways Day Visit Survey. (Literature Matrix ref. N/A).	<b>H</b> - This is a recent survey of visitors to locations operated by British Waterways.	<b>H</b> - The benefits consistency is high	The expenditure values can be combined with CS values to estimate the total WTP for this activity. The estimates can be used to value both marginal changes in recreational benefits or the total value of current benefits.	£4.05 (2008 prices)	Reported expenditure (mean value) for fishing visits.	Expenditure	The values should be updated to current prices. They are for use in a cost-benefit analysis where WTP estimates are sought. If they are used in an EcIA, they should be adjusted for displacement, leakage and multiplier effects.	Public	Visitor / User Numbers	There are a range of surveys available which estimate visitor numbers, for instance the UK Tourism Survey or the British Waterways Information Visitors Surveys. Site specific information may also be available from local fishing clubs. Where visitor data is not available, users may refer to the Benefit Assessment Guidance (Environment Agency, 2003, see Part Two - Rivers and Groundwater).
6.1.3 e	Cultural	Recreation (land based)	Bird watching	Dickie, I., Hughes, J., and Esteban, A. (2006). Watched Like Never Before... the local economic benefits of spectacular bird species, RSPB. (Literature Matrix ref. #62)	<b>M</b> - A review of the economic impacts of bird watching associated with 10 spectacular bird species (tourism, expenditure, FTE, etc). No evidence of adjustments for leakage, displacement, etc.	<b>M</b> - values relate to 'spectacular' bird species occurring in various natural environments.	Data can be used for the assessment of current benefits at bird-watching sites where spectacular species of birds can be observed as well as to value a marginal change.	£7.17 (2005 prices)	Average expenditure per person per day at osprey-watching sites.	Expenditure	Note: these values are for 'spectacular' species of birds which will likely attract more visitors to the site and a greater percentage of these visitors will have bird watching as a primary reason for visiting. Relevant values are likely to vary according to the site location, the popularity of the species in question and whether the site is already a bird-watching destination.	Public	Visitor / User Numbers	UK Tourism Survey, the British Waterways Information Visitors Surveys, Bird watching societies.

Reference to Guidance Section	Ecosystem Service Category	Category of Benefits	Benefit	Source of data	Quality of the study	Benefit consistency	Applicable to Total or Marginal Assessments	Valuation data				Aggregation		
								Value	Units	Type of Value	Adjustments	Beneficiaries	Physical data	Data Sources
6.1.3 f	Cultural	Regeneration	Visual amenity	Garrod, G., and Willis, K. (1998). Using contingent ranking to estimate the loss of amenity value for Inland Waterways from public utility service structures. Environmental and Resource Economics 12, 241-247. (Literature Matrix ref. #73)	<b>M/L</b> - Little info provided on socio-economic characteristics of the sample, substitution, biases, etc. However, given the experience and qualifications of the contributing authors, this is more likely to be an issue with the brevity of the publication (due to a restricted word count or other). Contingent ranking perhaps not a true indicator of WTP as values are prescribed.	<b>M</b> - May be able to derive unit values for visual amenity value of canal lengths with high/medium/low/no amount of visual obstruction.	The data are recommended to value a marginal change in the number of structures and are not appropriate for assessing the total value of visual amenity/disamenity.	£0.04 - pipe bridges £0.09 - pylons £0.10 - other cable crossings (1995 prices)	WTP per household per year for a 1% reduction in the number of types of service structures.	Total WTP	The values should be adjusted to account for increases in real income over time using an adjustment factor of 0.7% per year. Note this increase does not account for changing preferences only time (i.e. placing greater value on the natural environment than was the case in previous years). The total value should then be uplifted to current prices.	Public	Percentage reduction or increase in structures along the waterway, number of visiting household (i.e. number of visiting adults divided by a mean of 2.23 adults per household).	There are a range of surveys available which estimate visitor numbers, for instance the UK Tourism Survey or the British Waterways Information Visitors Surveys. Also see the Benefits Assessment Guidance (2003) for more information/sources for population aggregation.
6.1.3 g	Cultural	Heritage/Cultural values	Visiting heritage sites	Adamowicz, W.L., Garrod, G.D., and Willis, K.G. (1995). Estimating the passive use benefits of Britain's Inland Waterways. Centre for Rural Economy Research Report. (Literature Matrix ref. #30)	<b>M/H</b> - Good survey size; robust methodology; piloting was carried out; reasons for positive bids were ascertained and considered; strategic bids removed; socio-economic values were treated and considered. The study was deemed 'Class 2' in final English Nature report (Jacobs 2007) which meets basic and preferred criteria. It is therefore considered suitable for use in value transfer.	<b>H</b> - The survey was completed around the UK so is not location specific.	This value is suitable for generating a high-level estimate of the heritage benefits of inland waterways and should not be used to value a marginal change in heritage benefits.	£1.50 - £7.47 (1995 prices)	Value per household per year for respondents who 'view canals as heritage resource'.	WTP	The lower range (median value) should be used as a conservative estimate. The upper range (mean value) can be applied for sensitivity testing. The values should be adjusted to account for increases in real income over time using an adjustment factor of 0.7% per year. Note this increase does not account for changing preferences only time (i.e. placing greater value on the natural environment than was the case in previous years). The total value should then be uplifted to current prices.	Public	Number of visitors who perceive the canals as a heritage resource.	There are no standard assumptions available to arrive at an appropriate aggregation figure. The user will therefore need to make a best estimate or refer to the Benefits Assessment Guidance (2003) for more information.
6.1.3 h	Cultural	Cultural values	Education	No valuation data available. See guidance Section 6.1.3 h.	-	-	-	-	-	-	-	-	-	-
6.1.3 i	Cultural	Cultural values	Volunteering	No valuation data available. See guidance Section 6.1.3 i.	-	-	-	-	-	-	-	-	-	-
6.1.3 j	Cultural	Cultural values	Community benefits	No valuation data available. See guidance Section 6.1.3 j.	-	-	-	-	-	-	-	-	-	-
6.1.3 k(i)	Cultural	Heritage & Environment	Non-use values	Adamowicz, W.L., Garrod, G.D., and Willis, K.G. (1995). Estimating the passive use benefits of Britain's Inland Waterways. Centre for Rural Economy Research Report. (Literature Matrix ref. #30)	<b>M/H</b> - Good survey size; robust methodology; piloting was carried out; reasons for positive bids were ascertained and considered; strategic bids removed; socio-economic values were treated and considered. The study was deemed 'Class 2' in final English Nature report (Jacobs 2007) which meets basic and preferred criteria. It is therefore considered suitable for use in value transfer.	<b>H</b> - The survey was completed around the UK so is not location specific.	These values are best applied as an assessment of the current maintenance programme on navigable waterways. When user benefits are sought, it is recommended that the WTP values for informal visitors for improvements is applied.	£0.75 - £5.55 (1995 prices)	WTP of non-visitors per household per year.	Total WTP	The lower range (median value) should be used as a conservative estimate. The upper range (mean value) can be applied for sensitivity testing. The values should be adjusted to account for increases in real income over time using an adjustment factor of 0.7% per year. Note this increase does not account for changing preferences only time (i.e. placing greater value on the natural environment than was the case in previous years). The total value should then be uplifted to current prices.	Public	Population data (households). Care must be taken to avoid double counting with use benefits, as users' WTP will most likely contain an element of non-use.	There are no standard assumptions available to arrive at an appropriate aggregation level. Distance from the site should be considered, as well as whether the site is of national or local importance. Refer to the Benefits Assessment Guidance (2003) for methodologies for population aggregation. Alternatively, the population density (available from the Office of National Statistics) can be multiplied by pi and divided by 2.3 to arrive at an estimated number of households.
6.1.3 k(ii)	Regulating	Environment	Biodiversity non-use values	Spash, L., Urama, K.C., Kenyon, W., Burton, R., Shannon, P. and Hill, G. (2004) Understanding the value of Biodiversity in Water Ecosystems: Economics, Ethics and Social Psychology. University of Aberdeen, 31. (Literature Matrix ref. #146)	<b>M/H</b> - This study was deemed 'Class 2' (of 3) in a previous assessment of the quality of CVM studies in the UK (Jacobs 2007), meeting most of the basic and preferred requirements of a CVM. Pre-testing and pilot testing were carried out by an accredited survey company. Good sample size but large number of protest bids, zero bids and refused bids (730 out of 1012).	<b>M</b> - The WTP values presented here are for a significant improvement in biodiversity. In the case of Inland Waterways this study might be used to assess the cost of such a loss in biodiversity where it might result from other activities - such as hydropower development. It could also be used where a significant biodiversity improvement would result from some form of intervention or restoration.	Data can be applied to assess benefits resulting from a given change. The change examined in this case was the restoration of biodiversity in the River Tummel and its surrounding area from 14% to 70%.	£22.48 (2003 prices)	Value per household (one off payment) of biodiversity improvement from 14% to 70% below natural levels.	Total WTP	The value relates to a significant improvement in biodiversity levels and should only be applied where similar loss/improvement is expected. The values should be adjusted to account for increases in real income over time using an adjustment factor of 0.7% per year. Note this increase does not account for changing preferences only time (i.e. placing greater value on the natural environment than was the case in previous years). The total value should then be uplifted to current prices.	Public	Population numbers (in households). It is recommended that these are aggregated across a conservative distance band.	Population data can be sourced from the Office of National Statistics. See the Benefits Assessment Guidance (2003) for appropriate distance bands for aggregation.
6.1.3.k (iii)	Regulating	Environment	Water quality non-use values	Msharafieh, H. and Hanley, N. (unpublished. Paper due 2009) (Literature Matrix ref. #152)	<b>H</b> - This study is recent, is directly related to improvements in an inland waterway and was produced by the University of Stirling who have many years experience in designing and carrying out CE.	<b>M</b> - The improvement in water quality is expected to provide a range of benefits. However as respondents were driven by improvements in the ecological condition, not by the length of the river improved or by the smell, and the fact that 59% of respondents never visited the Manchester Ship Canal, non-use values and ecological improvements values appear to dominate. It is therefore assumed that this value can broadly be attributed to a WTP for biodiversity protection.	Data can be applied to assess benefits resulting from changes in river water quality. Choice experiments provide a range of attribute levels and an associated price. The attributes related to the number and location of the reaches affected by the improvements, the number of days with a bad smell each year (from 4 to 16), the extent of the ecological improvement; and the associated increase in water bills per year.	£6.00 (2008 prices)	Mean WTP per household per year for improvements in ecological quality (as provided in the presentation reviewed).	Total WTP	These values should be inflated to current prices. Consideration is required around how these values can be aggregated given distance decay findings.	Public	Population numbers in different distance bands. Socio-economic characteristics of population (age, gender, employment status/income and education levels).	Population data (numbers and socio-economic characteristics) from the Office of National Statistics/ information from local authorities/ councils.
6.1.3.l (i)	Cultural	Combined	Boating, heritage aspects and tow paths	Adamowicz, W.L., Garrod, G.D., and Willis, K.G. (1995). Estimating the passive use benefits of Britain's Inland Waterways. Centre for Rural Economy Research Report. (Literature Matrix ref. #30)	<b>M/H</b> - Good survey size, robust methodology. Piloting. Reasons for positive bids were ascertained and considered; strategic bids removed. Socio-economic values were treated and considered. Study was deemed 'Class 2' in final English Nature report (Jacobs 2007) which meets basic and preferred criteria. Suitable for use in value transfer.	<b>H</b> - The survey was completed around the UK so is not location specific.	The values are best applied when considering the total benefits of an existing maintenance programme. When user benefits are sought (for example, to value an improvement), it is recommended that the WTP values for informal visitors for improvements is applied.	£0.75 - £6.66 (1995 prices)	WTP per household per year to retain boating, heritage and towpaths.	Total WTP	The values should be adjusted to account for increases in real income over time using an adjustment factor of 0.7% per year. Note this increase does not account for changing preferences only time (i.e. placing greater value on the natural environment than was the case in previous years). The total value should then be uplifted to current prices.	Public	Population numbers (in households). The value should not be added to other informal use or non-use value categories as this will likely result in double counting. It can be added to the value of specialist recreational activities (e.g. boating and angling).	Population data can be sourced from the Office of National Statistics. See the Benefits Assessment Guidance (2003) for appropriate distance bands for aggregation.