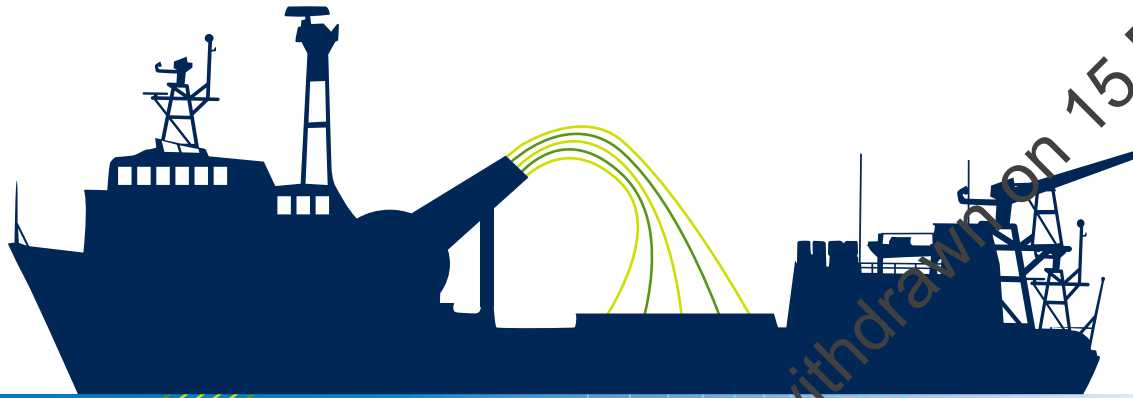




Environment
Agency



Clearing the waters

A user guide for marine dredging activities –
Stage two: new projects process

May 2012

This document is out of date and was withdrawn on 15 December 2016.

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Stage two: new dredging and disposal project process

The new projects process applies to:

- **all new dredging and disposal activities;**
- maintenance dredging and disposal activities that have been “screened in” following the screening process; and
- any proposals which significantly change the nature of ongoing dredging or disposal activities.

For the purposes of the WFD “new” dredging includes any maintenance dredging that was not carried out during 2006–2008 when we were classifying the water body.

Before starting the scoping process you should familiarise yourself with the [Trigger Table](#). Record the outcome of the decisions made in [Table 4](#).

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New Dredging and Disposal Project Processes

Maintenance dredging or disposal activities carried out between 2006-2008 should refer to the Maintenance Dredging and Disposal Process.

Step 1

For each and every parameter in the [Trigger Table](#) use the criteria listed to identify if dredging or disposal could be a potential cause of failure.

Record on Table 4

Step 2

For each parameter where dredging/disposal has been identified as being a potential cause of failure record the current status and the future objectives (2015 and 2027)

Record on Table 4

Step 3

Proceed to Assessment

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Step 1: identify issues

Identify all the WFD parameters that could potentially be affected at water body level by the proposed dredging or disposal activity.

For **all activities**, step 1 involves considering each WFD parameter on the list to identify all those where a possible causal link exists. That is where water status could be affected at water body level by the proposed dredging or disposal activity.

Action: Using the Trigger Table identify where an activity fulfills the trigger criteria and record on Table 4 for that WFD parameters or protected area characteristic.

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Step 2: record current status and 2015 objective of quality element

For each quality element ticked, the next step is to record its current status and to indicate the level of confidence in the assessment leading to this conclusion. You should also understand the objective (status) for the water body in 2015 as this will indicate whether the RBMP already includes measures designed to improve the current status of the water body. This information should be available from our [WiYBy](#) website.

Action: Refer to the [WiYBy](#) site and the relevant [River Basin Management Plan](#) to find the current ecological and chemical status for relevant parameters along with the 2015 objectives for the water body. Record this information in [Table 4](#).

[Return to flowchart.](#)

Note: For most water bodies the 2027 target will be good status. However, measures for the period beyond 2015 may not yet have been agreed and may not therefore be included in the river basin management plan. For the purposes of applying this guidance, your assessment should focus on ensuring that dredging or disposal does not compromise the effectiveness of measures already described in the WFD programme of measures for 2015.

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Table 4: New Dredging and Disposal Projects

Step	1	2		
	Identify issues	Record current status & 2015 objectives		
	Tick all potentially affected quality elements or identify all potentially affected protected area characteristics	Record current status of quality element (include level of confidence in assessment)	Record 2015 objective	Record 2027 objective
	1	2a	2b	2c
	Referring to trigger tables, tick quality elements where potential causal link exists	High/Good/Moderate/Poor/Bad for Ecological Elements or High/Fall for Chemical Elements or Protected Area status or Not Assessed		
WFD Parameter (quality elements, specific pollutant priority substance, Protected Area)				
Biological elements				
Phytoplankton				
Other aquatic flora (e.g. saltmarsh and seaweed)				
Benthic invertebrate fauna				
Fish fauna (transitional only)				
Hydromorphological elements supporting biological elements				
Morphological conditions				
Depth variation				
Bed				
Intertidal zone structure				
Tidal regime				
Dominant currents (coastal water bodies only)				
Freshwater flow (transitional water bodies only)				
Wave exposure				
Chemical and physico-chemical elements supporting biological elements				
Transparency				
Thermal conditions				
Oxygenation conditions				
Salinity				
Nutrient conditions (e.g. nitrogen)				
Specific Pollutants				
Arsenic				
Chromium				
Copper				

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Table 4: New Dredging and Disposal Projects (continued)

Step	1	2		
	Identify issues	Record current status & 2015 objectives		
	Tick all potentially affected quality elements or identify all potentially affected protected area characteristics	Record current status of quality element (include level of confidence in assessment)	Record 2015 objective	Record 2027 objective
	1	2a	2b	2c
	Referring to trigger tables, tick quality elements where potential causal link exists	High/Good/Moderate/Poor/Bad for Ecological Elements or High/Fall for Chemical Elements or Protected Area status or Not Assessed		
WFD Parameter (quality elements, specific pollutant priority substance, Protected Area)				
Zinc				
PCBs (congeners to be confirmed by EA & CEFAS)				
Selected Priority Substances				
Anthracene				
Hexachlorobenzene, Hexachlorobutadiene and Hexachlorocyclohexane				
Penta Bromodiphenyl ethers				
Cadmium and its compounds				
Fluoranthene				
Lead and its compounds				
Mercury and its compounds (PHS)				
Napthalene				
Nickel and its compounds				
Polyaromatic hydrocarbons (Benzo(a)pyrene (Benzo(b)fluoranthene (Benzo(g,h,i)perylene (Benzo(k)fluoranthene (Indeno(1,2,3-cd)pyrene) and benzo(g,h,i)perylene)				
Tributyltin compounds				
Protected Areas				
Areas designated for the protection of economically significant aquatic species (shellfish waters)				
Bodies of water designated as recreational waters (bathing water)				
Nutrient-sensitive areas including Nitrate Vulnerable Zone, polluted Waters and Sensitive Areas				
Areas designated for the protection of habitats or species where maintenance or improvement of the status of water is an important factor in their protection, including Natura 2000 sites (Special Areas of Conservation and Special protection Areas)				

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Step 3 - Proceed to the Assessment Stage

The user, having established the scope of the assessment (i.e. The WFD parameters where the trigger criteria were exceeded, and/or protected areas) is now in a position to move to Stage 3 - Assessment.

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How to use the Trigger Table

Introduction

This section will help you to understand and use the trigger thresholds in the screening process for certain ongoing activities and new projects. It also forms the initial part of the assessment process for new activities, or maintenance activities for which significant changes are proposed.

The aim of the **Trigger Table** is to provide high-level screening criteria that both operators and regulators can use to assess whether an individual dredging or disposal operation should proceed from the screening stage to the assessment stages.

These screening criteria should identify activities likely to have a **significant** effect on WFD parameters at water body level. Ideally, these screening criteria would be sourced from **UKTAG guidance** on standards but, in many cases, UKTAG has not set standards for WFD parameters. In the absence of such standards, thresholds and triggers are proposed based on expert judgement and applying best available scientific evidence.

In some cases it is not yet possible to devise thresholds and triggers that already take into account whether or not an effect will be likely at water body level. Such triggers will be replaced in due course as more guidance becomes available, for example from UKTAG, us and/or Defra/WAG. In the meantime, however, the initial steps of the screening process

should ensure that impacts which are insignificant at water body level are filtered out from further detailed assessment.

We anticipate that many of these thresholds and triggers will be revised as research outputs become available.

Note that the Table is in two parts. **Table A** contains screening criteria for dredging activities while **Table B** contains trigger criteria for disposal activities. These instructions apply to either or both of these tables.

How to use Tables A (dredging) and B (disposal)

There are two points at which you can be referred to the Trigger Table:

- i. from step 2, part B of the screening process, or
- ii. from step 1 of the New Projects Process.

i. From step 2, part B of the screening process (for example for a maintenance dredge): You will need to have confirmed that the water body is not at “good status” and identified the parameter(s) causing this failure. That is, which WFD quality element(s), supporting element(s), protected area characteristic, priority substance(s) and/or specific pollutant(s) are inadequate.

For each of these parameters you should identify the relevant row in the **Trigger Table** column 1 and consider the proposed dredging or disposal activity against the criteria described in column 3.

Column 3 is divided into two sub-columns. The first sub-column contains the trigger and the second sub-column contains the criterion that determines whether assessment is required. This is explained further in Example 1.

Example 1

An operator is planning to carry out both maintenance dredging and disposal within a single water body. They have identified that the water body is failing to meet “good status” for the following reasons:

- i. “good ecological status” is not being achieved due to modifications to the inter-tidal zone structure covered under the hydromorphological supporting element.
- ii. “good chemical status” is not being achieved due to the presence of Tributyltin oxide TBT in the water column.

The user locates the two failing parameters in **column 1** of **Trigger Table** as shown in Figure 1 for the inter-tidal zone parameter.

The user can ignore all other parameters in column 1 except the second failing parameter, TBT.

Taking the inter-tidal hydromorphology supporting element first, the user looks at the screening trigger in the third column: “**does the dredging directly remove inter-tidal area or it is within 10m of Mean Low Water Springs?**” as shown on Figure 2. The user

notes that the dredge will not remove inter-tidal material and is at least 50m from MLWS. The answer to the screening trigger is therefore “no”.

The user then refers to **“Assessment required?”** threshold in column 3 (**“If yes”**). As the answer is “no”, the user can conclude that assessment is not required for this parameter.

The same process should be followed for the second failing parameter, TBT. The user locates the TBT element in the first column and reviews the trigger **“if present in sediments above Centre for Environment, Fisheries & Aquaculture Science (CEFAS) action level 1”**.

The user is aware from sediment sampling that the dredged material does contain TBT at concentrations above CEFAS action level 1. The user concludes that assessment is required for this parameter.

The operator then records the outcome of the process for dredging and repeats for the disposal operation. In this case, the outcome is the same as for dredging with inter-tidal zone structure not requiring assessment while TBT does.

Screening outcome: the potential effect of the dredging and disposal activities on the priority substance TBT should be considered further. Proceed to the assessment process.

Figure 1: Extract from column 1 of the Trigger Table

WFD parameter (quality elements, specific pollutant priority substance, protected area)
Biological elements
Phytoplankton.
Other aquatic flora.
Benthic invertebrate fauna.
Fish fauna (transitional only).
Hydromorphological elements
Morphological conditions
Depth variation.
Bed.
Inter-tidal zone structure.
Tidal regime
Dominant currents (relevant to coastal water bodies only).
Freshwater flow (relevant to transitional water bodies only).
Wave exposure.

← Column 1

← Failing parameter

Figure 2: Extract from column 3 of the Trigger Table

Dredging triggers for potential effects on WFD parameters at water body level	
Trigger.	Assessment required.
Does the dredging directly remove inter-tidal area or is it within 10m of MLWS?	If yes.
Is the dredge a capital or new dredge or a significant change to an existing dredge?	If yes.

← Column 3

← Assessment threshold

← Criteria trigger

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The user then proceeds to the assessment process to define the nature of the assessment. The assessment will be limited to considering whether the dredging and disposal operations will have a significant non-temporary effect at water body level on the priority substance TBT. Note that the WFD **aim to improve** objective will also need to be considered in accordance with the guidance provided on [identification and evaluation of measures](#).

ii. From step 1 of the New Projects process (for example for a new or capital dredge): In this situation a dredging or disposal activity is considered as a new project that has the potential to affect quality elements. The user should, therefore, use the triggers and thresholds in column 3 of the [Trigger Table](#) to review their project against all the WFD parameters listed in column 1.

The user should indicate all parameters for which the trigger threshold is breached. The assessment process will define the appropriate level of the subsequent assessment required for each of these parameters.

The user should then proceed with step 3 of the New Project Process.

The [Trigger Table](#) explanatory notes also provide an explanation for the selection of the trigger criteria and thresholds used in the [Trigger Table](#).

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Trigger table for dredging effects on WFD parameters*

WFD parameter (quality elements, specific pollutant priority substance, protected area)	Classification	Dredging triggers for potential effects on WFD parameters at water body level (where possible)	
		Trigger*	Assessment required
Biological elements			
Phytoplankton.	Composition, abundance and biomass.	Screened out.	
Other aquatic flora (for example angiosperms; saltmarsh, seagrass or macroalgae; seaweed).	Composition and abundance.	a. Will the dredging directly remove inter-tidal area or is it within 10m of MLWS?	If yes.
Benthic invertebrate fauna.	Composition and abundance.	or	
Fish fauna (transitional only).	Composition and abundance.	b. Proportion of water body impacted by dredging activity. Zone of effect = 1.5 x dredge footprint = X m ² . Water body size = Y m ² . or c. High level risk assessment. Dredge methodology: dispersive = 1. non-dispersive = 0. Timing: March to October = 1. November to February = 0. Duration of dredging activity: <25% year = 0. 25–50% = 0.5. >50% = 1. Dispersive dredging includes (but is not limited to): – discharge into a water body through pipe from a cutter suction dredger. – ploughing. – water injection dredging. – water agitation dredging.	If X is > 5% of Y i.e. the dredging will affect more than 5% of the water body. If total score is 2 or more. (Scores should be added together to give a total score.)

*For an explanation of triggers and threshold criteria see [Trigger Descriptions](#).

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Trigger Table (continued)

WFD parameter (quality elements, specific pollutant priority substance, protected area)	Classification	Dredging triggers for potential effects on WFD parameters at water body level (where possible)	
		Trigger	Assessment required
Hydromorphological elements supporting biological elements			
<i>Morphological conditions</i>			
Depth variation.		Proportion of water body impacted by dredging activity.	
Bed.	Quantity (transitional only), structure and substrate.	Zone of effect = 1.5 x dredge footprint = X m ² . Water body size = Y m ² .	If X is > 5% of Y i.e. the dredging will effect more than 5% of the water body.
Inter-tidal zone structure.		Will the dredging directly remove inter-tidal area or is it within 10m of MLWS?	If yes.
<i>Tidal regime</i>			
Dominant currents (relevant to coastal water bodies only).	Direction.	Is the dredge a capital or dredge or a significant change to a maintenance dredge? For this parameter the definition of maintenance dredging should generally be taken to be the MMO definition of dredging that has been carried during the previous 10 years.	If yes.
Freshwater flow (relevant to transitional water bodies only).		Screened out.	
Wave exposure.		Is the activity a capital dredge that will take place in a shallow water body?	If yes.

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Trigger Table (continued)

WFD parameter (quality elements, specific pollutant priority substance, protected area)	Classification	Dredging triggers for potential effects on WFD parameters at water body level (where possible)	
		Trigger	Assessment required
Chemical and physico-chemical elements supporting biological elements			
Transparency.		High level risk assessment. Score dredge as follows: Zone of effect: >5% = 1. <5% = 0. Dredge methodology: dispersive = 1. non-dispersive = 0. Timing: March to October = 1. November to February = 0. Duration of dredging activity: <25% year = 0. 25–50% = 0.5. >50% = 1.	If the total score is 1.5–4. (Scores should be added together to give a total score.)
Thermal conditions.		Screened out	
Oxygenation conditions.		High level risk assessment. Score dredge as follows: Zone of effect: >5% = 1. <5% = 0. Dredge methodology: dispersive = 1. non-dispersive = 0. Timing: March to October = 1. November to February = 0. Duration of dredging activity: <25% year = 0. 25–50% = 0.5. >50% = 1.	If the total score is 4 or more. (Scores should be added together to give a total score.)

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Trigger Table (continued)

WFD parameter (quality elements, specific pollutant priority substance, protected area)	Classification	Dredging triggers for potential effects on WFD parameters at water body level (where possible)	
		Trigger	Assessment required
Oxygenation conditions. (continued)		Sediment COD ¹ . Dredge site near to major raw sewage inputs = 3. No known inputs or issues = 0. Water body background dissolved oxygen ¹ . Identified as an issue in RBMP = 3. Not identified as an issue in RBMP = 0.	
Salinity.		Screened out with the exception of the Norfolk Broads.	
Nutrient conditions (for example nitrogen).		Is the dredge a capital or new** dredge?	If yes.
Specific pollutants	The trigger for specific pollutants will need to be refined using the awaited Defra guidance on the EQS Directive, results of the CEFAS dredging research programme and potentially the development of sediment contaminant levels that can reliably be shown to result in breaches of EQS levels. In the interim, and in accordance with the precautionary principle, it is proposed to require an assessment for dredging activities where a marine licence for the associated disposal is not in place or, if not relevant, where a specific pollutant is present in sediments above CEFAS action level 1.		
Arsenic.		Is a marine licence for the disposal of dredged material in place?	If no.
Chromium.		Or, if not applicable.	
Copper.		Is the pollutant present in sediments above CEFAS Action Level 1?	If yes.
Zinc.		Repeat for each Specific Pollutant.	
PCBs* (congeners to be determined).			

¹ It is expected that a port, harbour or marina operator would be aware if their water body had a problem with dissolved oxygen. If there is uncertainty then refer to the River Basin Management Plan which should highlight any significant issues. With respect to the COD of the dredged material this is only likely to be a problem in certain circumstances for example if the dredge site is located near to sewage inputs. Dredging in such materials often gives off gases that can be seen as bubbles in the water. Discussion with port members on the advisory group suggest that such an occurrence is unlikely when dredging marine sediments England and Wales.

*PCBs are not yet included on the list of specific pollutants but are likely to be included in the near future. Further discussion is required between the regulators and industry about their inclusion at this stage.

**New dredge: maintenance dredging that was not carried out during the Environment Agency's classification period 2006–2008 and all capital dredges.

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Trigger Table (continued)

WFD parameter (quality elements, specific pollutant priority substance, protected area)	Classification	Dredging triggers for potential effects on WFD parameters at water body level (where possible)	
		Trigger	Assessment required
Selected priority substances	The screening trigger for priority substances will need to be refined using the awaited Defra guidance on the EQS Directive, results of the CEFAS dredging research programme and potentially the development of sediment contaminant levels that can reliably be shown to result in breaches of EQS levels. In the interim, and in accordance with the precautionary principle, it is proposed to screen in dredging operations where a Priority substance is present in sediments above CEFAS action level 1.		
Anthracene (PHS).		Is a marine licence for the disposal of dredging material in place?	If no.
Hexachlorobenzene, Hexachlorobutadiene and Hexachlorocyclohexane. <i>These substances are not measured by CEFAS. Research may be required to demonstrate the need for analysis. Analysis not usually requested EA.</i>		Or, if not applicable. Is the substance present in sediments above CEFAS Action Level 1?	If yes.
Penta bromodiphenyl ethers. <i>Only measured by CEFAS in certain locations. Analysis not usually requested by EA.</i>		Repeat for each Priority Substance.	
Cadmium and its compounds (PHS).			
Fluoranthene.			
Lead and its compounds.			
Mercury and its compounds (PHS).			
Napthalene.			
Nickel and its compounds.			
Polyaromatic hydrocarbons (PHS). • (Benzo(a)pyrene) (PHS). • (Benzo(b)fluoranthene) (PHS). • (Benzo(g,h,i)perylene) (PHS). • (Benzo(k)fluoranthene). • (Indeno(1,2,3-cd)pyrene).			
Tributyltin compounds (PHS).			

Note that Table A includes only those priority substances that are considered likely to be relevant to sediments in transitional and coastal waters. [subject to review by the EA and CEFAS].
Substances marked (PHS) are priority hazardous substances.

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Trigger Table (continued)

WFD parameter (quality elements, specific pollutant priority substance, protected area)	Classification	Dredging triggers for potential effects on WFD parameters at water body level (where possible)	
		Trigger	Assessment required
Protected areas (relevant to dredging and disposal activities)	Relevant legislation		
Areas designated for the protection of economically significant aquatic species (for example shellfish waters).	Freshwater Fish Directive 78/659/EEC. Shellfish Waters Directive 76/160/EEC and 20006/7/EEC.	Is the dredge footprint or zone of effect located in or within 2km of a protected area?	If yes.
Bodies of water designated as recreational waters (for example bathing waters).	Bathing Waters Directive 76/160/EEC and 2006/7/EEC.	Is the dredge footprint or zone of effect located in or within 2km of a protected area?	If yes.
Nutrient-sensitive areas including Nitrate Vulnerable Zones, polluted waters and sensitive Areas.	Nitrates Directive 91/676/EEC. Urban Wastewater Treatment Directive 91/271/EEC.	Is the dredge a capital or new** dredge?	If yes.

**New dredge: maintenance dredging that was not carried out during the Environment Agency's classification period 2006–2008 and all capital dredges.

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Trigger Table (continued)

WFD parameter (quality elements, specific pollutant priority substance, protected area)	Classification	Dredging triggers for potential effects on WFD parameters at water body level (where possible)	
		Trigger	Assessment required
Areas designated for the protection of habitats or species where maintenance or improvement of the status of water is an important factor in their protection, including Natura 2000 sites (for example Special Areas of Conservation or Special Protection Areas).	Habitats Directive 92/43/EEC (SACs). Birds Directive 79/409/EEC (SPAs).	<p>Is the dredge footprint or zone of effect located in or within 2km of a protected area?</p> <p>Is the dredge a maintenance dredging* that has been assessed by the Maintenance Dredging Protocol or been subject to Appropriate Assessment?</p> <p>For this parameter the definition of maintenance dredging should generally be taken to be the MMO definition of dredging that has been carried during the previous 10 years. However, advice should be sought from CEFAS/EA if, for example, a new** activity will take place in a shallow water body.</p>	<p>If yes. and If no.</p>

For the purposes of the WFD and Table A the following definitions apply (unless explicitly stated):

*Maintenance dredge: dredging carried out during the Environment Agency's most recent classification period, currently 2006–2008.

**New dredge: maintenance dredging that does not fall within the above criteria and all capital dredges.

[Return to flowchart.](#)

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Trigger Table for Disposal Effects on WFD parameters*

WFD parameter (quality elements, specific pollutant priority substance, protected area)	Classification	Dredging triggers for potential effects on WFD parameters at water body level (where possible)	
		Trigger*	Assessment Required
Biological elements			
Phytoplankton.	Composition, abundance and biomass.	Screened out.	
Other aquatic flora (for example angiosperms; saltmarsh, seagrass or macroalgae; seaweed).	Composition and abundance.	a. Will the dredging directly remove inter-tidal area or is it within 10m of MLWS?	If yes.
Benthic invertebrate fauna.	Composition and abundance.	or	
Fish fauna (transitional only).	Composition and abundance.	b. Proportion of water body impacted by disposal activity. Disposal site = X m ² . Water body size = Y m ² . Note that effects of dispersive dredging techniques are considered under dredging. Only licensed disposal or placement sites should be considered in this column.	If X is > 5% of Y i.e. the disposal will effect more than 5% of the water body.
Hydromorphological elements supporting biological elements			
<i>Morphological conditions</i>			
Depth variation.		Proportion of water body impacted by disposal activity.	If X is > 5% of Y i.e. the dredging will effect more than 5% of the water body.
Bed.	Quantity (transitional only), structure and substrate.	Disposal site footprint = X m ² . Water body size = Y m ² .	
Inter-tidal zone structure.		Is the disposal site on the inter-tidal area or is it within 10m of MLWS?	If yes.
<i>Tidal regime</i>			
Dominant currents (relevant to coastal water bodies only).	Direction.	Is this a new disposal site in a coastal water body or a significant change to existing disposal operations at a site in a coastal water body?	If yes.

*For an explanation of screening triggers and threshold criteria see [Trigger Descriptions](#).

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Trigger Table for Disposal Effects on WFD parameters (continued)

WFD parameter (quality elements, specific pollutant priority substance, protected area)	Classification	Dredging triggers for potential effects on WFD parameters at water body level (where possible)	
		Screening trigger	Assessment Required
Freshwater flow (relevant to transitional water bodies only).		Screened out.	
Wave exposure.		Is the activity a capital dredge* that will take place in a shallow water body?	If yes.
Chemical and physico-chemical elements supporting biological elements		Screened out.	
Transparency.		<p>Screened out with exceptions. Best available evidence indicates that effects of disposal on transparency are temporary.</p> <p>However if the activity involves the intentional dispersal of sediment the screening trigger for dredging should be applied.</p> <p>Dispersive dredging includes (but is not limited to):</p> <ul style="list-style-type: none"> • discharges into a water body through pipe from a cutter suction dredger; • ploughing; • water injection dredging; • water agitation dredging. 	
Thermal conditions.		Screened out.	
Oxygenation conditions ¹ .		Screened out.	
Salinity.		Screened out.	
Nutrient conditions (for example nitrogen).		Screened out.	
Specific pollutants	It may be that CEFAS can provide research indicating that disposal operations result in very temporary effects on water quality. If so, disposal operations will be screened out. In the interim the same approach is taken as for dredging.		
Arsenic.		Is a marine licence for the disposal of dredged material in place?	If no.
Chromium.		Or, if not applicable.	
Copper.		Is the pollutant present in sediments above CEFAS Action Level 1?	If yes.
Zinc.		Repeat for each Specific Pollutant.	

*New dredge: maintenance dredging that was not carried out during the Environment Agency's classification period 2006–2008 and all capital dredges.

¹ It is expected that a port, harbour or marina operator would be aware if their water body had a problem with dissolved oxygen.

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Trigger Table for Disposal Effects on WFD parameters (continued)

WFD parameter (quality elements, specific pollutant priority substance, protected area)	Classification	Dredging triggers for potential effects on WFD parameters at water body level (where possible)	
		Trigger	Assessment Required
PCBs (congeners to be determined). PCBs are not yet included on the list of specific pollutants but are likely to be included in the near future. Further discussion is required between the regulators and industry about their inclusion at this stage.		Is a marine licence for disposal of dredging material in place?	If no. If yes. If yes.
Selected priority substances	The trigger for PS will need to be refined using the awaited Defra guidance on the EQS Directive, results of the CEFAS dredging research programme and potentially the development of sediment contaminant levels that can reliably be shown to result in breaches of EQS levels. In the interim, and in accordance with the precautionary principle, it is proposed to require an assessment for disposal activities where a marine licence for the disposal is not in place (or has been in place for this activity in the last two years).		
Anthracene (PHS). Hexachlorobenzene, hexachlorobutadiene and hexachlorocyclohexane. <i>These substances are not measured by CEFAS. Research may be required to demonstrate the need for analysis. Analysis not usually requested by EA.</i>		Is a marine licence for the disposal of dredging material in place?	If no.
Penta bromodiphenyl ethers. <i>Only measured by CEFAS in certain locations. Analysis not usually requested by EA.</i>			
Cadmium and its compounds (PHS).			
Fluoranthene.			
Lead and its compounds.			
Mercury and its compounds (PHS).			
Napthalene.			

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Trigger Table for Disposal Effects on WFD parameters (continued)

WFD parameter (quality elements, specific pollutant priority substance, protected area)	Classification	Dredging triggers for potential effects on WFD parameters at water body level (where possible)	
		Trigger	Assessment Required
Nickel and its compounds.		Is a marine licence for the disposal of dredging material in place?	If no.
Polyaromatic hydrocarbons (PHS):			
<ul style="list-style-type: none"> • (Benzo(a)pyrene) (PHS). • (Benzo(b)fluoranthene) (PHS). • (Benzo(g,h,i)perylene) (PHS). • (Benzo(k)fluoranthene). • (Indeno(1,2,3-cd)pyrene). 			
Tributyltin compounds (PHS).			
Protected areas (relevant to dredging and disposal activities)	Relevant legislation		
Areas designated for the protection of economically significant aquatic species (for example shellfish waters).	Freshwater Fish Directive 78/659/EEC. Shellfish Waters Directive 76/160/EEC and 20006/7/EEC	Is the disposal footprint located fully or partially within the designated area? <i>If the activity involves the intentional dispersal of sediment the screening trigger for dredging should be applied.</i>	If yes.
Bodies of water designated as recreational waters (for example bathing waters).	Bathing Water Directive 76/160/EEC and 2006/7/EEC.	Is the disposal footprint located fully or partially within the designated area? <i>If the activity involves the intentional dispersal of sediment the screening trigger for dredging should be applied.</i>	If yes.

Note that Table B includes only those priority substances that are considered likely to be relevant to sediments in transitional and coastal waters. [Subject to ongoing review by the EA and CEFAS].
Substances marked (PHS) are priority hazardous substances.

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Trigger Table for Disposal Effects on WFD parameters (continued)

WFD parameter (quality elements, specific pollutant priority substance, protected area)	Classification	Dredging triggers for potential effects on WFD parameters at water body level (where possible)	
		Trigger	Assessment Required
Nutrient-sensitive areas including Nitrate Vulnerable Zones, polluted waters and sensitive areas.	Nitrates Directive 91/676/EEC. Urban Wastewater Treatment Directive 91/271/EEC.	Screened out.	
Areas designated for the protection of habitats or species where maintenance or improvement of the status of water is an important factor in their protection, including Natura 2000 sites (for example Special Areas of Conservation or Special Protection Areas).	Habitats Directive 92/43/EEC (SACs). Birds Directive 79/409/EEC (SPAs).	<p>Is the disposal footprint located fully or partially within the designated area?</p> <p>Is the disposal site an existing site that has been assessed by the Maintenance Dredging Protocol or been subject to an appropriate assessment?</p> <p><i>If the activity involves the intentional dispersal of sediment the screening trigger for dredging should be applied.</i></p>	<p>If yes. and If no.</p>

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Trigger table explanatory notes

This explains the selection of the trigger criteria and thresholds used in the Trigger Table.

Introduction

To comply with the requirements of the WFD, it must be shown that an individual dredging or disposal activity will not have an effect on the status at water body level. This will require consideration of the potential impacts of the activity on the parameters that contribute to the water body's overall status. These parameters include biological elements, hydromorphological supporting elements, physico-chemical supporting elements, specific pollutants, priority substances and protected areas. It was therefore necessary to interpret each of the parameters using the available (although limited) policy guidance and, drawing on best available scientific evidence, to prepare the suite of trigger criteria and thresholds included in the Trigger Table.

In the absence of detailed guidance the interpretation of these parameters has relied on professional

experience and input from the project board and advisory group to prepare the current criteria. However, where guidance was available this was included as, or incorporated into, the criteria for example CEFAS action levels. In all cases, the criteria were used to help understand the potential effect that dredging and disposal activities could have upon the WFD parameter.

Ideally all triggers would be based on effects likely to be significant at water body level. There is, however, a lack of scientific evidence linking the effects of dredging or disposal activities to many of the WFD parameters. In such cases we have identified precautionary triggers. Where WFD parameters are clearly of no relevance to either dredging or disposal activities or to transitional or coastal waters they have been removed, screened out or not included on the trigger table.

For an explanation of triggers and threshold criteria see [Trigger Descriptions](#).

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Trigger Descriptions: An explanation of the reasoning behind each of the screening triggers and threshold criteria

WFD parameter (quality elements, specific pollutant priority substance, protected area)	Dredging trigger explanation	Disposal trigger explanation
Biological elements		
Phytoplankton.	Screened out as there is no obvious mechanism by which dredging or disposal activities could affect phytoplankton at water body level.	
Other aquatic flora (for example saltmarsh or seaweed).	Dredging may affect these biological parameters through direct removal or disturbance to species living within the dredge site or its surroundings, or from settlement over a wider area of sediment suspended in the water column. The effects of suspended sediment transparency and dissolved oxygen are explained against those elements.	Disposal activities may affect these biological parameters through smothering and destroying species living within the boundaries of the disposal site or its immediate environs. During disposal the large majority of the dredged material falls quickly to the seabed with only limited entrainment into the water column. Once on the seabed the material may gradually migrate through tidal action and seabed processes; however, mass movement of material is unlikely.
Benthic invertebrate fauna.	The trigger would ideally be based on the vulnerability of the biology in the water body to the dredging operation (where vulnerability included an aspect of rarity of the species in it). For example, referring to a map where the seabed has been graded for its biological importance both for the species it supported and for its role in key biological functions (such as fish spawning or nursery grounds). Any trigger should also take account of the potential far-field effects associated with dredging operations. Predicting far-field effects is, however, both complex and costly and it is not reasonable or appropriate for this to be done at screening stage. It is, therefore, necessary to develop triggers that take account of all of these potential effects.	
Fish fauna (transitional waters).	The trigger would ideally be based on the vulnerability of the biology in the water body to the disposal operation (where vulnerability included an aspect of rarity of the species in it). For example, referring to a map where the seabed has been graded for its biological importance both for the species it supported and for its role in an key any biological functions (such as fish spawning or nursery grounds).	
We have prepared triggers as follows:		
<ol style="list-style-type: none"> 1. A trigger to assess any dredging activity on or within 10m of an inter-tidal area that recognises the accepted relatively high importance of many inter-tidal areas. 		

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Trigger Descriptions (continued)

WFD parameter (quality elements, specific pollutant priority substance, protected area)	Dredging trigger explanation	Disposal trigger explanation
<p>Other aquatic flora (for example saltmarsh or seaweed).</p> <p>Benthic invertebrate fauna.</p> <p>Fish fauna (transitional waters).</p> <p><i>(continued)</i></p>	<p>2. A separate area-based trigger that aims to take account of the immediate zone of effect of the dredging activity. In addition to the dredged area (including side slopes), dredging may cause local deposition of sediment in the area surrounding the dredge site. This sediment includes material disturbed at the drag head of the dredger and also some of sandy material from the its overflow. Best available evidence suggests that such effects would be constrained to an area about half the size of the dredge site itself. We have prepared a zone of effect trigger of 1.5 x the dredge site. Dredging activities are screened in if this zone of effect affects more than 5% of the water body (5% being drawn from UKTAG guidance on classification of morphological pressures).</p> <p>3. We have defined a further trigger to cover the far-field effects of dredging activities. This trigger features a high-level fish assessment where information on the dredging methodology, the timing of the dredge and the duration of the dredge is scored to provide an aggregate score that equates to the risk of the dredging causing far-field effects. We have designed the scoring based on experience of far-field effects from dredging. An activity is screened in only if it is dispersive and will be carried out at a more sensitive time of the year for biology or if it is dispersive and of long duration. The scoring will also screen in conventional dredging (trailer suction hopper dredger) if it will be carried out during a sensitive period for biology and is of long duration.</p> <p>These triggers are designed so that dredging in an inter-tidal area is automatically screened in. Dredging that has the potential to directly affect a significant portion of the water body is also screened in, as is dredging that may have extensive far-field effects or be of long duration.</p>	<p>In the absence of such information and, giving sufficient weight to the need for triggers to be interpreted by non-specialists, the following triggers have been prepared. They take into account the fact that any effects are likely to be within a contained area of the disposal site:</p> <p>4. An area-based trigger of the disposal site affecting 5% or more of the water body based on UKTAG guidance on classification of morphological pressures.</p> <p>5. A separate trigger for any disposal activity that is on or within 10m of an inter-tidal area that recognises the accepted relatively high importance of many inter-tidal areas.</p> <p>Any disposal activity requiring assessment for one of these parameters would need to relate its effects to the actual biology in the water body. This must take account of the limitations of the fish element to transitional waters.</p> <p>Disposal at a highly-dispersive site or the use of dispersive dredging techniques is included in the dredging trigger. These techniques could have the additional effect of smothering species or sensitive areas for biological functions over a wider area than a licensed disposal site.</p>

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Trigger Descriptions (continued)

WFD parameter (quality elements, specific pollutant priority substance, protected area)	Dredging trigger explanation	Disposal trigger explanation
Hydromorphological elements supporting biological elements		
<i>Morphological conditions</i>		
Depth variation.	Under the WFD the hydromorphological elements are designed to support the biological elements rather than being important features in their own right. The triggers described for the biological elements are, therefore, also applicable to the morphological conditions parameters. In this instance the far-field effects have not been included as they are of lesser relevance to the classifications of these elements.	Under the WFD the hydromorphological elements are designed to support the biological elements rather than being important features in their own right. As explained above, in the absence of suitable available information on biology it has been necessary to define triggers relating to morphological effects of a disposal activity. The triggers described for the biological elements therefore also apply to the morphological conditions parameters.
Bed.		
Inter-tidal zone structure.		
<i>Tidal regime</i>		
Dominant currents (coastal water bodies only).	Only the largest dredges could have the potential to affect dominant currents at water body level. However, any new dredge could be expected to change local currents which, if they took place at a particularly sensitive sites, could have a wider effect. With this in mind, we have taken a precautionary approach. Any new dredge site in coastal waters or existing dredge in coastal waters that will undergo a significant change in the depth or area of dredging would be screened in. Note that many large dredges are likely to occur in transitional waters and, therefore, compliance with this element would not be required.	It is considered very unlikely that any disposal activity would affect dominant currents at water body level. However, new disposal sites could be expected to change local currents and such changes, if they took place at a particularly sensitive sites, could have the potential to have a wider effect. With this in mind a precautionary approach has been taken and any new disposal site in coastal waters or existing disposal site in coastal waters that will undergo a significant change in the amount of material it receives are required to be assessed further.
Freshwater flow (transitional water bodies only).	No assessment required as there is no obvious mechanism by which dredging or disposal activities could affect freshwater flow at water body level.	

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Trigger Descriptions (continued)

WFD parameter (quality elements, specific pollutant priority substance, protected area)	Dredging trigger explanation	Disposal trigger explanation
Wave exposure.	We consider it very unlikely that any dredging would affect wave exposure at water body level. However, in the absence of clear evidence supporting this theory we have taken a precautionary approach and any new dredge in shallow water is required to have further assessment.	We consider it very unlikely that any disposal activity would affect wave exposure at water body level. However, in the absence of clear evidence supporting this theory a precautionary approach has been taken and any new disposal site in shallow water is required to have further assessment.
Chemical and physicochemical elements supporting biological elements		
Transparency.	<p>Dredging activities have the potential to affect transparency through the introduction of suspended sediment into the water column. The magnitude of any effect will be dependent on both the type of material to be dredged and the dredging methodology. Dispersive dredging on a silty substrate has considerably more potential to affect transparency than, for example, using a backhoe to dredge sand.</p> <p>Given this variability we have prepared a high-level risk assessment that screens in those dredging operations that have the potential to affect transparency. The consideration of material type and any other local variables can take place at scoping stage at which point it may be appropriate to scope out a dredging activity.</p> <p>The risk assessment uses information on the zone of effect, dredging methodology, the timing of the dredge and the duration of the dredge to provide an aggregate score that equates to the risk of the dredging causing effects on transparency.</p>	<p>In general disposal operations (i.e. bottom dumping) are unlikely to have anything other than transitory effects on transparency. Fine sediment is generally contained within the bulk of the dredged material which is thought to move as a cohesive mass from the vessel to the seabed. As the dredged material falls through the water column there is likely to be a degree of stripping of material from the boundaries of the mass with subsequent entrainment into the water column. Further, as the mass reaches the seabed some material may rebound into the lower part of the water column however this then falls back to the seabed. Any effects are likely to be localised and temporary. On this basis disposal activities have been screened out with the exception of sites where it is the intention to disperse sediment. Disposal at such sites or the use of dispersive dredging techniques is included in the dredging trigger.</p>
Thermal conditions.	No assessment required as there is no obvious mechanism by which dredging and disposal activities could affect thermal conditions.	

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Trigger Descriptions (continued)

WFD parameter (quality elements, specific pollutant priority substance, protected area)	Dredging trigger explanation	Disposal trigger explanation
Oxygenation conditions.	<p>Dredging activities in areas with an existing problem with dissolved oxygen, or extensive dredging of sediments with a high chemical oxygen demand, could affect dissolved oxygen. However, in practice, monitoring of dredging suggests that such effects are unlikely.</p> <p>We have adapted the high-level risk assessment previously used, to include two additional tests designed to highlight dredging where dissolved oxygen could be affected. These additional tests are:</p> <ol style="list-style-type: none"> 1. Considering whether the dredge site is near a major raw sewage input. 2. Checking to see if the relevant River Basin Management Plan has highlighted dissolved oxygen as a concern for the water body. <p>The scoring is designed to assess any dredge that answers “yes” to one of the above questions and at least one other risk factor.</p>	No assessment required as highly unlikely that disposal activities could affect these parameters at water body level. Refer to “transparency” for an explanation of water quality effects.
Salinity.	Salinity is not usually an issue for dredging activities and this element does not require assessment with the exception of certain tidal rivers where there may be issues relating to the migration of the salt water wedge.	
Nutrient conditions.	Dredging does not generally affect nutrient conditions; however, on a precautionary basis new dredges will be assessed if they are in a Nutrient Sensitive Area.	

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Trigger Descriptions (continued)

WFD parameter (quality elements, specific pollutant priority substance, protected area)	Dredging trigger explanation	Disposal trigger explanation
<p>Specific pollutants</p> <p>Priority substances</p>	<p>The effects of dredging activities on water quality relate to the dredging methodology, the sediment quality of the material to be dredged, the particle size of the material, the duration of the dredging, etc. There is a significant gap in scientific knowledge about how sediment-bound pollutants behave during dredging activities. You should note, however, that in many locations where dredging is carried out the water quality is considered to be good.</p> <p>Given this uncertainty, we have set the trigger to include dredging activities where the sediment quality for an individual substance is greater than CEFAS action level 1.</p> <p>This is an interim approach while policy guidance is developed.</p>	<p>As explained under “transparency” the physical processes associated with most disposal activities are unlikely to lead to any extensive or long-term effects on water quality. However, water quality monitoring for specific pollutants during disposal activities is limited. There is also a gap in scientific knowledge about how sediment-bound pollutants behave during disposal activities. On a precautionary basis, we have set the trigger to screen in disposal of dredged material where the sediment quality for an individual substance is greater than CEFAS action level 1. This is an interim approach while policy guidance is developed.</p>
<p>Protected areas</p>	<p>Dredging activity may affect protected areas through, for example, the direct removal of sensitive features; smothering of sensitive features from deposition of dispersed sediment; or changes in tidal flows leading to changes in sedimentation or erosion patterns. To be workable at screening stage the trigger needs to rely on information likely to be readily available and understood by a non-specialist. There is no policy guidance available on what such a trigger would comprise therefore we have designed a two-stage approach.</p> <p>The first stage determines whether the dredge footprint or zone of effect is within 2km of a protected area, based on the following:</p> <ol style="list-style-type: none"> 1. MMO environmental sensitivity supplement applies to projects within 2km of a SAC/SPA. 	<p>Disposal activity may affect the features of a protected area through the physical effects of sediment placement on the seabed. The nature and extent of any effects will depend on the sensitivity of the protected feature and the characteristics of the placed material.</p> <p>The trigger takes account of the relatively contained nature of effects from disposal activities. Only disposal sites fully or partially within a protected area are screened in.</p> <p>Dispersive sites should use the dredging trigger criteria.</p> <p>The second trigger relates to disposal included in the Maintenance Dredging Protocol or has been subject to an appropriate assessment. Any such disposal does not require assessment.</p>

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Trigger Descriptions (continued)

WFD parameter (quality elements, specific pollutant priority substance, protected area)	Dredging trigger explanation	Disposal trigger explanation
Protected areas (continued)	<p>2. Modelling of plume dispersion from dredging activities generally shows a reduction in suspended sediments to within background ranges after a few kilometres.</p> <p>A more detailed review of the potential for effect would include consideration of the tidal excursion in the area and the direction of flow. We expect such consideration to be carried out at assessment stage.</p> <p>The second trigger relates to dredging that is included in the Maintenance Dredging Protocol or has been subject to an appropriate assessment. Any such dredging does not require further assessment.</p>	

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