



MILFORD HAVEN WATERWAY
ENVIRONMENTAL SURVEILLANCE GROUP

GRŴP CADW GOLWG AMGYLCHEDDOL
AR DDYFRFFORDD ABERDAUGLEDDAU

**DEVELOPMENT OF AN INPUTS BUDGET FOR MILFORD
HAVEN WATERWAY**

TECHNICAL REPORT

APRIL 2005

1 Executive Summary/ Crynodeb Gweithredol

Atkins was commissioned by the Milford Haven Waterway Environmental Surveillance Group (MHWESG) in May 2002 to review and further the understanding of pollutant inputs to the Milford Haven Waterway in Pembrokeshire, south west Wales. The Waterway is important for both its conservation and commercial interest, and the MHWESG therefore consider it essential to have an overall understanding of pollutant loads to the Waterway.

The objectives of this project, as set out in the Brief, were to:

- i. Confirm the location, type and quality of inputs data for Milford Haven Waterway
- ii. Review the analysis and interpretation of existing inputs data and, where necessary, re-analyse data
- iii. Where possible acquire input data and archive in secure form
- iv. Where there are significant gaps in the data make recommendations for survey work to meet shortfalls

The project has been conducted with regards to the broader aims of the MHWESG. Care was taken to ensure the project did not become solely a data collection exercise. Furthermore, effort has been made to collate data, produce systems and make recommendations that are transparent and easily updateable and which will provide real value to the MHWESG in the longer-term development of a pollution inputs budget.

Four data inventories have been developed, each tailored to reflect the nature of the data stored. Three databases describe the key data held in relation to the Waterway and the Cleddau catchments - holding information on continuous discharges, pollution incidents and risk data respectively. In addition, a further bibliographic database has been developed which holds records of articles, reports and books relating to the Waterway or to inputs studies. The four inventories are stored on a CD (Appendix C). Where possible input data have been acquired and archived in secure form. All electronic data has also been saved on the CD.

During the assessment of the information held it was found that 82% of the datasets for continuous discharges could be considered useful for an inputs budget. Pollution incident data were gathered from various sources including a comprehensive dataset on oil spills in the Haven which showed that many spills were associated with common locations, mainly next to jetties or anchorages.

Substances were categorised into common name groups so that discharges and pollution incidents belonging to a particular substance category could be highlighted at the same time. It was noted that there are some obvious gaps in the monitoring for particular substances and geographical areas.

Tools for undertaking an inputs budget were considered at a technical seminar. Experts assessed the models and tools that may be used for an inputs budget and produced summary tables. The technical issues and list of substances have been evaluated along with the suitability of current data and the need for further data requirements. This includes an initial assessment of the implications of the Water Framework Directive (WFD).

We have eight recommendations to the Group, covering the management of data, refining substances of interest, implications of the WFD and the next steps towards an inputs budget. These are:

Recommendation 1: that the inventories become the focus for information about data (meta-data) and reports that are of interest to MHWESG. The inventories should be updated periodically to include new records and to edit details of existing records.

Recommendation 2: that current and new data is left with the host organisation and only obtained by MHWESG when needed. Information regarding these host-organisation databases should be updated periodically on the MHWESG Meta-Databases. This process is more efficient and ensures that the only relevant and up-to-date data is used for a particular purpose.

We have assessed the models and tools that may be used for an inputs budget and produced summary tables (Tables 9-1 and 9-2). The technical issues and list of substances have been evaluated along with the suitability of current data and the need for further data requirements.

Recommendation 3: that a review of the spread of monitoring for the more exotic substances, metals, biocides etc is undertaken to see whether any additional monitoring in the geographical gaps is justified.

Recommendation 4: that a review on the geographical spread of monitoring is carried out, particularly the inputs from some of the smaller streams and rivers around the Haven which appear to be under-represented (identification of these, together with a review of potential monitoring should be considered).

Recommendation 5: that the MHWESG narrow down the substances of interest, while also focussing on the problem areas. This twin-track approach will allow a more streamlined assessment of data capability and help identify further data requirements. It should also inform more detailed modelling that the MHWESG may wish to consider in the future.

Recommendation 6: as a next stage a coarse inputs budget should be conducted. This should follow implementation of recommendation number 5 and would come before any detailed modelling. A coarse inputs budget would provide an understanding of catchment pollutant sources and pathways and impacts within the Waterway itself. This could be a useful lead-in to one or more detailed input budgets, perhaps involving an estuary model. Conducting a coarse inputs budget would also further assess current data capability and help identify any additional data or monitoring/surveillance requirements. Providing a focus on key areas, parameters and sources, would inevitably save money if a more detailed approach is considered in the future.

Recommendation 7: the MHWESG should be aware of the work that the Agency are doing for the WFD as the steps involved should parallel the work towards an inputs study of the area (the steps are summarised in Figure 10-1). During the Characterisation stage (up to the end of 2004) the following aspects will be pulled together, all of which will be useful to MHWESG:

- ◆ Delineation of water bodies and typing
- ◆ Collation of pressure information for the catchment, including where significant pollutant sources are likely to come from
- ◆ Assessing impacts within the Haven itself, including some assessment of provisional status
- ◆ Whether the Haven is thought to be at risk of failing the Directive's Objectives or not

- ◆ Where monitoring should be targeted and direction for setting up a Programme of Measures to deal with any identified problems.

Recommendation 8: it is recommended that the Group should review the output from the pressures and impacts WFD work undertaken by the Agency, to see if there are any messages that are useful for highlighting future monitoring work, and to harness information on the methodologies used which may be useful for an inputs budget approach. It would also be an opportunity to provide feedback to the Agency on their approach.

Crynodeb Gweithredol

Ym Mai 2002, cafodd Atkins ei gomisiynu gan Grwp Gwyliadwriaeth Amgylcheddol Dyfrffordd Aberdaugleddau (MHWESG) i adolygu a hybu dealltwriaeth am fewnlif llygryddion i Ddyfrffordd Aberdaugleddau yn Sir Benfro, de orllewin Cymru. Mae'r Ddyfrffordd yn bwysig am ei nodweddion cadwriaethol a masnachol, ac mae MHWESG felly yn ystyried bod cael dealltwriaeth gyffredinol am lwythi llygryddion y Ddyfrffordd yn hanfodol.

Amcanion y prosiect hwn, fel a nodwyd yn y Briff, oedd:

- v. Cadarnhau'r data am leoliad, math ac ansawdd mewnlifoedd i Ddyfrffordd Aberdaugleddau
- vi. Adolygu'r dadansoddiad a'r dehongliad o'r data cyfredol am fewnlifoedd a lle bo'r angen, ailddadansoddi'r data
- vii. Lle bynnag y bo'n bosibl, cael data am fewnlif a'i archifo ar ffurf ddiogel
- viii. Lle bo bylchau sylweddol yn y data, gwneud argymhellion am waith arolwg a fydd yn diwallu'r diffygion

Cafodd y prosiect ei gynnal gyda golwg ar nodau ehangach MHWESG. Cymerwyd gofal i sicrhau nad oedd y prosiect yn troi'n ymarfer casglu data yn unig. Hefyd, gwnaed ymdrech i goladu data, creu systemau a gwneud argymhellion sy'n dryloyw ac yn hawdd i'w diweddarau ac a fydd yn rhoi gwerth go iawn i MHWESG o ran datblygu cyllideb mewnlifoedd llygryddion yn y tymor hir.

Datblygwyd pedair rhestr ddata, pob un ohonynt wedi'u teilwra i adlewyrchu natur y data a gedwir. Mae tair o'r cronfeydd data yn disgrifio'r data allweddol sy'n cael ei ddal mewn perthynas â'r Ddyfrffordd a dalgylchoedd y Cleddau - gan ddal yn eu tro wybodaeth am ollyngiadau parhaus, achosion o lygredd a data am risg. Yn ogystal, datblygwyd cronfa ddata lyfryddiaethol bellach, sy'n cynnwys cofnodion am erthyglau, adroddiadau a llyfrau sy'n perthyn i'r Dyfrffordd, neu i astudiaethau am fewnlifoedd. Mae'r pedair rhestr yn cael eu cadw ar gryno ddisg (Atodiad C). Lle bo'n bosibl mae data mewnlif a gafwyd wedi cael eu harchifo ar ffurf ddiogel. Mae'r holl ddata electronig wedi cael ei gadw ar y cryno ddisg hefyd.

Wrth asesu'r wybodaeth sy'n cael ei dal, darganfuwyd bod modd ystyried bod 82% o'r setiau data am ollyngiadau parhaus yn ddefnyddiol ar gyfer cyllideb mewnlifoedd. Casglwyd data am achosion o lygredd o ffynonellau amrywiol gan gynnwys set ddata gynhwysfawr am arllwysiadau olew yn yr Aber a ddangosai fod llawer o'r arllwysiadau yn gysylltiedig â lleoliadau cyffredin, yn bennaf ger glanfeydd neu angorfâu.

Cafodd sylweddau eu categoreiddio yn grwpiau ag iddynt enwau cyffredin fel y gellid amlygu gollyngiadau ac achosion o lygredd a oedd yn perthyn i gategori neilltuol o sylwedd ar yr un pryd. Nodwyd bod rhai bylchau amlwg yn y gwaith o fonitro sylweddau ac ardaloedd daearyddol neilltuol.

Ystyriwyd yr offer ar gyfer ymgymryd â chyllideb mewnlifoedd mewn seminar technegol. Cafodd y modelau a'r offer y gellid eu defnyddio ar gyfer cyllideb mewnlifoedd eu hystyried gan arbenigwyr, a chynhyrchwyd tablau crynhoi. Cafodd y materion technegol a'r rhestr sylweddau eu gwerthuso ynghyd ag addasrwydd y data cyfredol a'r angen am ofynion data pellach. Mae hyn yn cynnwys asesiad cychwynol o oblygiadau'r Gyfarwyddiaeth Fframwaith Dwr (WFD).

Mae gennym wyth o argymhellion i'r Grwp, gan gynnwys rheoli data, puro sylweddau o ddi-ddordeb, goblygiadau'r WFD a'r camau nesaf tuag at gyllideb mewnlifoedd. Dyma'r argymhellion:

Argymhelliad 1: bod y rhestrau'n dod yn ganolbwynt ar gyfer gwybodaeth am ddata (meta-data) ac adroddiadau sydd o ddi-ddordeb i MHWESG. Dylid diweddarau'r rhestrau o dro i dro i gynnwys cofnodion newydd a golygu manylion y cofnodion sydd eisoes yn bodoli.

Argymhelliad 2: bod data cyfredol a newydd yn cael ei gadw gan y sefydliad gwreiddiol gyda MHWESG yn gwneud cais amdano pan fydd arnynt ei angen yn unig. O dro i dro, dylid diweddarau'r wybodaeth am gronfeydd data'r sefydliadau gwreiddiol hyn ar Gronfeydd Meta-Data MHWESG. Mae'r broses hon yn fwy effeithlon ac yn sicrhau mai dim ond gwybodaeth berthnasol a chyfredol a ddefnyddir at ddiben neilltuoel.

Rydym wedi asesu'r modelau a'r offer y gellid eu defnyddio ar gyfer cyllideb mewnlifoedd, ac wedi cynhyrchu tablau crynhoi (Tablau 9-1 a 9-2). Cafodd y materion technegol a'r rhestr sylweddau eu gwerthuso ynghyd ag addasrwydd y data cyfredol a'r angen am ofynion data pellach.

Argymhelliad 3: ymgymryd ag adolygiad o ledaeniad monitro'r sylweddau, mhetalau, bioladdwyr mwy estron ac ati, i weld a oes modd cyfiawnhau cynnal monitro ychwanegol yn y bylchau daearyddol.

Argymhelliad 4: bod adolygiad o ledaeniad daearyddol y gwaith monitro yn cael ei gynnal, yn enwedig y mewnlifoedd o rai o'r nentydd ac afonydd llai o gwmpas yr Aber, mae'n ymddangos y cânt eu tangynrychioli (dylid ystyried nodi'r rhain, ynghyd â chynnal adolygiad o fonitro posibl).

Argymhelliad 5: bod MHWESG yn gostwng nifer y sylweddau o ddi-ddordeb, gan ganolbwyntio hefyd ar yr ardaloedd problemus. Bydd yr ymagwedd dau drywydd hon yn caniatáu asesiad mwy syml o allu'r data ac yn helpu i nodi gofynion data pellach. Dylai hefyd lywio modelu manylach y bydd MHWESG o bosibl am ei ystyried yn y dyfodol.

Argymhelliad 6: dylid cynnal cyllideb mewnlifoedd fras fel y cam nesaf. Dylai hyn ddigwydd yn dilyn gweithredu argymhelliad 5 a chyn unrhyw fodelu manwl. Byddai cyllideb mewnlifoedd fras yn cynnig dealltwriaeth o ffynonellau llygryddion dalgylch a llwybrau troed ac effeithiau yn y Ddyfrfordd ei hun. Gallai hyn fod yn arweiniad defnyddiol i un neu fwy o gyllidebau mewnlif manwl, efallai'n cynnwys model ar gyfer yr aber. Byddai cynnal cyllideb mewnlifoedd fras hefyd yn asesu gallu cyfredol y data ymhellach ac yn helpu i nodi unrhyw ofynion data neu fonitro/gwyliadwriaeth ychwanegol. Byddai canolbwyntio ar feysydd, paramedrau a ffynonellau allweddol yn anochel yn arbed arian petai ymagwedd fanylach yn cael ei hystyried yn y dyfodol.

Argymhelliad 7: dylai MHWESG fod yn ymwybodol o'r gwaith mae'r asiantaeth yn ei wneud i'r WFD, oherwydd dylai'r camau cysylltiedig fod yn gyfochrog â'r gwaith a wneir ar gyfer astudiaeth mewnlifoedd yr ardal (mae'r camau'n cael eu crynhoi yn Ffigur 10-1). Yn ystod y cam Nodweddu (hyd at ddiwedd 2004) caiff yr agweddau canlynol eu casglu at ei gilydd, a bydd pob un ohonynt o ddefnydd i MHWESG:

- ◆ Darluniad o gyrff dyfrol a mathau dŵr
- ◆ Coladu gwybodaeth pwysedd ar gyfer y dalgylch, gan gynnwys o ble mae ffynonellau llygredd sylweddol yn debygol o ddod
- ◆ Asesu effeithiau yn yr Aber ei hun, gan gynnwys rhywfaint o asesu'r statws dros dro
- ◆ A ystyrir bod yr Aber mewn perygl o fethu â bodloni Amcanion y Gyfarwydddeb ai peidio

- ◆ Ym mha le y dylid targedu'r monitro a chyfarwyddyd ynghylch sefydlu Rhaglen o Fesurau i ymdrin ag unrhyw broblemau a nodir.

Argymhelliad 8: argymhellir bod y Grwp yn adolygu'r allbwn o'r gwaith pwysedd ac effeithiau WDF a wnaed gan yr Asiantaeth, i weld a oes unrhyw negeseuon sy'n ddefnyddiol ar gyfer amlygu gwaith monitro yn y dyfodol, a chael gwybodaeth am y methodolegau a ddefnyddiwyd a all fod o ddefnydd i ddull cyllideb mewnlifoedd. Byddai'n gyfle i roi adborth i'r Asiantaeth ar eu dulliau hefyd.