

Is dredging DEEMed to be environmentally sustainable in the River Dart?

Reflections on a presentation to The Hydrographic Society UK (S W Region) given by

Ray Humphreys, Project Manager and Peter Odling Smee, Hydrographic Consultant to DEEM
(Dart Estuary Environmental Management)

Reported by Paul Edge

Anyone who knows the River Dart will recall that it winds its final few miles from Totnes to Dartmouth through bosomy Devon meadows and woodlands. One of England's most beautiful and pastoral scenes. Hard to imagine now that for centuries the lower reaches of the Dart has been a working river environment. Ships routinely traded into Totnes, ship repair yards were busy here and of course fishing has always been important. Some reaches of the river were regularly dredged commercially for sand and aggregates and to maintain a navigable channel, but this was stopped some time ago. More recently tourism has become the dominant 'industry'. A very popular pastime for visitors is to take a trip up river to Totnes in one of the many tour-boats that ply their trade from the Town Quay steps. For some, this is perhaps their first experience of having to 'work the tides'. The boats are quite large and have to leave late on the flood tide to make Totnes. To allow trippers time to spend their money in the town over high water, they return as late as they dare on the ebb. If you listened to the operators of these boats you would hear of the commercial pressures on their trade and how the river has silted up over the years so that they now have less time to get up river and back. They probably would not mention how fast they go or the damage their wash does to the river banks!



The River Dart winds it's final few miles from Totnes to Dartmouth through bosomy Devon meadows and woodland.

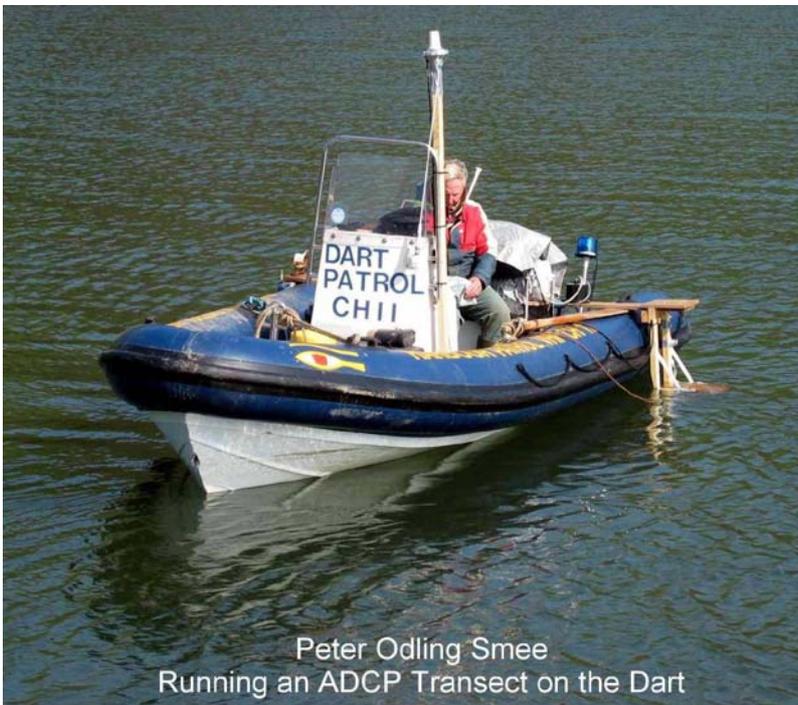
Management of this estuary environment has become a serious issue for the many 'stakeholders' who share, but have conflicting interests in it. The tour-boat operators want the channel to Totnes maintained by the re-instatement of regular dredging. Environmentalists have concerns about the loss of natural habitats while washed-out marshland banks needs controlling if navigable channels are to be maintained. Fishermen want to continue their traditional activities while a new oyster farming industry is also being started. Local government has EU targets for pollution to meet but tributaries draining off moor and farm land will always drain pollutants and nutrients into the river.

It was good to hear, on Wednesday last (12th January) at our South West Region evening meeting, that Hydrographic Surveyors are right in the thick of the action in a co-operative enterprise known as DEEM, (Dart Estuary Environmental Management), established to tackle the problem of balancing these various interests.

Ray Humphreys the project coordinator and Peter Odling Smee the Hydrographic Consultant, gave a fascinating talk on the issues involved and their methods of getting to grips with them. While Ray's task

as project leader has primarily been to raise and maintain awareness and funding, Peter's, as hydrographic consultant has been to research past hydrographic data and where necessary gather new data, from which both a DTM and a hydrodynamic model of the estuary can be built. If 'Environmental Sustainability' was mentioned once it was emphasised many times as being a primary goal for DEEM. Something that came across very strongly in their talk was the importance of recognizing that maintenance of the Hydrographic database itself is an important component of the sustainable environment that everyone is looking to achieve. Sustainable decisions cannot be made without a sustained effort to gather basic information on which to base those decisions. It was very clear that till now the absence of a reliable hydrographic data model has been a major handicap for managers of the Dart estuary environment.

Peter Odling Smee's part of the presentation and indeed the project itself, focused on past and present data gathering methods and the normalization of data to a common (OS) datum on which to build, first a DTM for the current state of the river bed and then a hydrodynamic model of its flow conditions the second of which has yet to be completed. Peter had technical support in this task from Kevin Gallagher of Clydeside Surveys and Rhod Powell of Lyndhurst Oceanographics. Extensive use was made of Acoustic Doppler Profiling (ADCP) coupled with digital river level gauging (using the local Totnes based firm of Valeport's tidegauges) to get a better handle on estuary flood and ebb flow rates than has ever been had previously.



Peter Odling Smee
Running an ADCP Transect on the Dart

Bathymetry revealed that a mere 200K cu metres of sediment had accumulated over the past 20 years but somewhat unexpectedly this had accumulated in the deeper, outer bends in the river. Extensive, river-bed samples were also taken for chemical pollutant analysis. Concerns about potential residual deposits of TBTs (tributyl tin), better known as anti-fouling paint, from ship repair activities etc., which if disturbed by dredging, could cause problems for the new oyster fishery project, have been also allayed somewhat. Clearly DEEMs efforts are beginning to yield a return on investment as it seems possible, given strict operating controls, that a limited sand and aggregate dredging programme could be re-introduced.

There is a bigger picture to report on however. 'Sustainability' has become a key word in the glossary of anyone involved in putting forward fund raising proposals for anything remotely associated with managing the environment today. On behalf of DEEM, Ray has brought interest groups together not just for the River Dart but also from other SW of England rivers and river authorities in France and Ireland, to build a case for EU Regional Development Funding (ERDF). Funding has been obtained under the auspices of the INTERREG 111B, Community Initiatives Programme, through which the EU supports local community initiatives. This programme particularly encourages joint efforts across the EU to find innovative solutions to commonly faced problems. The CYCLEAU project, (a bit of "Franglais" alluding to the "Water Cycle") in which DEEM is a major player, is what is known in EU jargon as an Inter-Regional Cooperation Project. Apart from answering questions specific to the River Dart, DEEM is thus aiming to develop a benchmark methodology that can be used by many other river authorities in the EU to manage their river environments effectively. Some intriguing new terminology is coming into the technical vocabulary as a result of their work. Have you for instance, come across; 'Catchment Profiles', 'the Water Cycle' or 'Participatory Democracy'. If you are in any-way involved in the hydrography of river estuaries, the work of CYCLEAU either as a way of raising funds or as a guide to environmental management methodology will be of interest and can be found on their web-site (www.cycleau.com). I can also recommend the Dart Estuary Environmental Management newsletter 'Tidelines' which gives excellent summaries and overviews of the varied aspects of the studies being undertaken in the Dart. (www.dartestuary.org and editors e-mail : rayh@dartestuary.org)