



National Oceanographic Library – Archive

Dr Nicholas ‘Nic’ Flemming Collection

Archive location	Archive A – Individual Collections
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Dr Nicholas ‘Nic’ Flemming joined the National Institute of Oceanography in 1967 and worked directly under George Deacon. He had started a major research project at Cambridge University on the recent variations of sea level in the western Mediterranean. As an expert diver, he surveyed underwater coastal Archaeological sites and underwater caves and erosion, measuring sea level changes around southern Greece, The Cretean Arc, Southern Turkey and Cyprus; and found that some islands had tilted during the Pleistocene collision of Africa and Eurasia. He organised and led many diving projects, mostly aimed at understanding the changes of sea level during the ice ages, and archaeological remains which are now under the sea. He has worked on various United Nations and UNESCO committees concerned with the management of the sea.

Dr Flemming started diving with the Royal Marine Special Boat Section in the during the 1950s. He became a founder member and the first Honorary Secretary of Cambridge University’s Underwater Exploration Group. He used his expertise in diving later to develop codes of practice for UK Offshore divers and became a founding member of the Society of Underwater Technology. Eventually it laid the foundations for the start of the United Kingdom Government’s code of practice for UK offshore divers and scientists at sea. Concerns about the safety of divers during GLORIA operations, led Sir George Deacon to ask Nic Flemming to develop codes of practice for the National Institute of Oceanography, then NERC, in conjunction with the UK Health and Safety Executive.

Dr Flemming was Chairman of the NERC Diving Officers Committee from 1978 to 1987, being responsible for the Code of Practice which defined the safety procedures, standards of training, and medical standards for government research laboratories undertaking diving operations. The NERC committee evolved into the UK Scientific Diving Supervisory Committee which expanded to accept representation from universities and other Government Agencies. The Supervisory Committee became, and still is the Health and Safety Executive recognised body representing occupational scientific diving. Dr Flemming was instrumental in negotiating with the HSE to deliver safety legislation that was best suited for supporting research diving programmes. He also helped many scientific diving communities overseas, including the United States, France, and Canada. These led to the development of European Standards for scientific and archaeological diving.

He chaired the editorial board for the UNESCO-CMAS International Code of Practice for Scientific Diving (1975-87), and Vice President since 1973, and was awarded the CMAS Gold Medal in 1973, and 1989. He is an Honorary Fellow of the Royal Geographical Society and awarded the Black Medal for contributions to underwater research in 1970. He has been a member of the Royal Geographical Society Expeditions and Research Committee since 1977, and chairman of its Marine Programme since 1991. He was awarded the Houlder Cup in 2010 for his distinguished association with underwater operations and diving safety. He has personally dived on over 400 submerged occupation sites, cataloguing over 3000 submerged Mesolithic and Palaeolithic settlements around the world, and published over 50 academic papers and submerged cities and drowned prehistoric caves and villages, mapping his first underwater city in 1958.

From 1988-1991 Dr Flemming was Secretary of the House of Lords, Co-ordinating Committee on Marine Science and Technology (CCMST). The CCMST was set up in response to the House of Lords Report on Marine Science and Technology, 1986, the case for more co-ordination between the different UK bodies with an interest in marine-related research. Its role was established to “provide an essential framework of basic, strategic and applied research priorities strongly linked to technological developments and industrial need”. The CCMST reported in 1990, setting out recommendations to create a national strategic framework. These included a new co-ordinating body with representation from the public and private sector, including universities. The CCMST also estimated that there would have been need for increased funding of £20-£30 million to meet the objectives which it had identified in its plan. In 1991 the CCMST was wound up and replaced by the Inter-Agency Committee on Marine Science and Technology (IACMST) which excluded businesses and the universities and had a narrower remit than that envisaged by the CCMST.

Dr Flemming was a founding editor in 1973 of *Estuarine and Coastal Marine Science*, continued to serve on the editorial board until 2005 (*Estuarine and Coastal Marine Science* changed its title in 1981 to *Estuarine Coastal and Shelf Science*). He was director of the British National Oceanographic Data Centre 1980-1987, and chairman of the International Oceanographic Data and Information Exchange Committee of the Inter-Governmental Oceanographic Commission. He was director of the European Office of the Global Ocean Observing System (EuroGOOS) from 1994 to 2001, and member of the GOOS Steering Group until 2001. He was awarded the Order of the British Empire in 1992.

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File 8.7 CMAS (Confederation Mondiale des Activités Subaquatiques (World Confederation of Underwater Activities), Scientific Committee – correspondence 1977-1995	12
File 8.8 New Zealand – Department of Scientific and Industrial Research & Ministry of Agriculture and Fisheries, Research Division – correspondence 1977-1988	12
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File 9.2 Vice-Chancellor – Committee of Vice Chancellors and Principals. Representation of scientific divers to the Health and Safety Executive – correspondence 1990-1994.	13
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File 9.4 Millport. University Marine Biological Station, Millport, Isle of Cumbrae (Great Cumbrae) - correspondence 1990-1994.	13
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EuroGOOS Registration Documents Registry documents issued by EUROGOOS 1993-2001. Internal Documents, minutes, action lists, plans, decisions (not correspondence) – sequential record of all official (but unpublished) papers of EUROGOOS. (Shows the origin and growth of operational oceanography in Europe) (EGREG Files 1-6)	
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(CCMST) Co-ordinating Committee on Marine Science and Technology	
CCMST Implementation Projects 1990 – Files of Project initiative taken by CCMST after Report publication and before establishment of IACMST in 1991. Listed by Project Number. <ul style="list-style-type: none"> • Project 6 – UK Directory of Marine and Freshwater Institutions, Scientists and Engineers. • Project (-14) CCMST – Technology transfer. 	35
CCMST Implementation Projects 1990 – Files of Project initiative taken by CCMST after Report publication and before establishment of IACMST in 1991. List by Project Number. (Continued) <ul style="list-style-type: none"> • Project 19/33 – Vessel sharing Programme 1988/ RVS (Research Vessels Services) • Project 20 – CCMST/Compact Disc/ super catalogue 2 folders: • (SUT/DTI (Society for Underwater Technology/ Department of Trade and Industry) • CCMST/SUT data for summary/ SUT CD-ROM crossref. • Project 52 – Education and training (Southampton University) CCMST/SUT (Society for Underw • Project 56 – CCMST – Implimentation – 56- Stream II Heriot-Watt University MTD Projects/ Stream II/ 1989 Company Adclients – Technology and marine physics. Acoustics/ Southampton IRC/ IMP.56.6 Centre for Ocean Technology, Robots and Automation/ Correspondence • Project 206 – UK Directory of Scientists in Marine Science and Technology 	36

<p>House of Lords – International Sub-Committee of CCMST (International Affairs Committee) Meetings, Papers:</p> <ul style="list-style-type: none"> • 1st Meeting, 24 August 1988 – 6th Meeting 29 January 1991. Meeting 1,2,4,5,6. (Meeting 3rd, not received for Archive) (The CCMST International Sub-committee was chaired by Sir Anthony Laughton) 	37
<p>CCMST - Extracts of important letters from files, 1988-1991 – Letters and Reports 1988-1989 (1990-1991, not deposited in archive) Index in Box (by subject). Departmental Committees and Programmes/ Quangos/ Research Associations/ Professional Institutions and Societies/ Commercial Research Organisations/ Laboratories and Institutions/ Universities/ Commercial Companies/ International (ACIOA)/ Implementation</p>	38
<p>CCMST – Meetings: papers, correspondence</p> <ul style="list-style-type: none"> • 1st Meeting, 6 January 1988 • 2nd Meeting, 19 January 1988 • 3rd Meeting, 22 April 1988 	39
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Poole and Christchurch Bays Project (Preamble)

Coast protection measures to prevent the recession of the 30m high cliffs at Bournemouth were constructed between 1907 and 1911. The defences involved a promenade and seawall extending 3km along the sea front. However beach levels quickly fell as the natural supply of sediment from the cliffs had ceased. This resulted in the need to construct a series of 29 groynes * (*A **groyne** is a rigid hydraulic structure built from an ocean shore (in coastal engineering) or from a bank (in rivers) that interrupts water flow and limits the movement of sediment. It is usually made out of wood or concrete) by 1939. A further 10 groynes were built in the 1950s as beach loss continued.

The artificial nourishment of beaches with sand was started in the United Kingdom in 1969. Deliberate replenishment of sand at Bournemouth and Christchurch began in the 1970s and was continued into the 1980s. Much of the sediment was obtained from nearby dredging operations, with different sized sediment being required at beaches with different wave regimes. The 1976 project at Bournemouth appears to have been effective for about ten years.

By the late 1950s the lower apron and toe of the older seawalls at Bournemouth had begun to deteriorate with resultant breaches and damage to promenades and associated infrastructure, which prompted a programme of research between 1960-1972 by Bournemouth Borough Council and the Hydraulics Research Station. This included seabed surveys, drifter and surface float experiments, fluorescent tracer studies, building of experimental concrete permeable groynes and an experimental beach recharge scheme. These studies resulted in a 'soft engineering' strategy which was adopted in 1972, involving groyne construction and beach recharge. The groyne building programme started in 1974 and 46 groynes were added to the frontage. Beach recharge was carried out in 1974-75. This was the largest scheme of its kind in the UK (May 1990) and remained effective for about 13 years. A further recharge scheme was undertaken from 1988-1990.

Artificial beach replenishment at Bournemouth and Christchurch took place in two main phases, at Bournemouth in 1975 and 1976, and separate schemes in both towns during the late 1980s. In all cases the additional beach material had been used to fill existing groyne compartments or in association with the construction of new groynes and walls.

References:

- May, Vincent – Replenishment of resort beaches at Bournemouth and Christchurch, England, *Journal of Coastal Research, Special Issues*, 6, pp.11-16, 1990.
- Palmers, Rendall and Tritton Ltd, Development and Engineering Consultants, Editors – Coastal Engineering History and Heritage, Great Britain. Bournemouth: Erosion Control and Beach Management. pp. 256-257 in, *History and Heritage of Coastal Engineering: a collection of papers on the history of coastal engineering in countries hosting the International Coastal Engineering Conferences 1950-1996*, Edited by NC Kraus, American Society of Civil Engineers, 1996.

The Archive (held with Dr Flemming's papers because of his research in the management of the sea and studies in sea level changes) contains:

- **Research Reports**, beach profiles and drawings. Sediment sampling and analysis was carried out by Southampton University, Department of Civil Engineering, Consulting Engineers in conjunction with Sir Williams Halcow and Partners, consulting engineers and Hydraulics Research Ltd with raw data/ correspondence/ bed profiles drawings, and various Reports of the Department of Civil Engineering, Southampton University of results of research and analysis.

<p>The Archive(held with Dr Flemming's papers) contains: (continued):</p> <ul style="list-style-type: none"> • Beach nourishment/ replenishment – grading analysis of sandmills – equilibrium coastal profiles – beach recharge – sediment movement analysis – sediment analysis/sampling data – wave run-up – sea level rise/ tidal levels analysis – shoreline monitoring – beach run-up – beach profiling/volume – sieve analysis/ tracer sands. • Areas include Hurst Beach/Spit – Hamble – Barton – Highcliffe – Milford-on-Sea – Bournemouth – Poole. • Copies of 2 papers which give a summary/description background (in Box 43) <ol style="list-style-type: none"> 1) May, Vincent – Replenishment of resort beaches at Bournemouth and Christchurch, England, <i>Journal of Coastal Research,Special Issues, 6, pp.11-16, 1990.</i> 2) Palmers, Rendall and Tritton Ltd, Development and Engineering Consultants, Editors – Coastal Engineering History and Heritage, Great Britain. Bournemouth: Erosion Control and Beach Management. <i>pp. 256-257 in, History and Heritage of Coastal Engineering: a collection of papers on the history of coastal engineering in countries hosting the International Coastal Engineering Conferences 1950-1996, Edited by NC Kraus, American Society of Civil Engineers, 1996.</i> 	
<p>The Archive (Boxes 43-74)</p>	
<p>The following in folder marked Poole and Christchurch Bays Project –preamble</p> <ul style="list-style-type: none"> • Copy of preamble to Poole and Christchurch Bay Project • Copy of section the Ordnance Survey Map, Sheet 16, 4 Miles to One Inch showing the broad area covered b y the project. • Copies of 2 papers which give a summary/description background: <p style="margin-left: 40px;">May, Vincent – Replenishment of resort beaches at Bournemouth and Christchurch, England, <i>Journal of Coastal Research,Special Issues, 6, pp.11-16, 1990.</i></p> <p style="margin-left: 40px;">Palmers, Rendall and Tritton Ltd, Development and Engineering Consultants, Editors – Coastal Engineering History and Heritage, Great Britain. Bournemouth: Erosion Control and Beach Management. <i>pp. 256-257 in, History and Heritage of Coastal Engineering: a collection of papers on the history of coastal engineering in countries hosting the International Coastal Engineering Conferences 1950-1996, Edited by NC Kraus, American Society of Civil Engineers, 1996.</i></p> 	<p>43</p>
<p>Hydrographic sand survey levels and particle size distribution - Survey research 25 July 1979 (<i>Feasibility of using photography as a means of calculating accuracy of a boat's track through the water in relation to the transit time, by J Cross, Department of Civil Engineering, Southampton University, August 1979</i>)</p> <p>Correspondence – data – sample sand analysis sheets – photographic negatives – photographs.</p>	<p>43</p>

Grid coordinates – <i>Research on sandwaves and seabed mobility in Smart Bay (Devon) (RV Edward Forbes Cruise, 10, 10A and 15 June-September 1977, Institute of Oceanographic Sciences, Cruise Report, 64, 1977)</i> Summary report data –list of Coordinate Stations provided, including Calshot (Fawley Power Station), Lymington (Walhampton Monument)	43
Ordnance Survey and Charts – Research. Sample Ordnance Survey maps and charts – Triangulation information (including Swanage, Pool Harbour) (1983) Letter to JS Cross, Coastal Research Department of Civil Engineering, Southampton University, dated 8 March 1983, from the Ordnance Survey.	43
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Ground Marker Sheets – Samples of and including stationmaster sheets/ particle size description sheets/ permanent ground marker description sheets	43
HYPack (Coastal Oceanographics Inc.) – Price list of products including contouring, cross sections, plotting, tides – samples of survey programming including C-map charts, mx screen layout, geodetic information, hydrographic survey, HYPack Guide, Hypack data – correspondence 1996-1999.	44
Digital Ground Modelling (DGM) – Information on digital ground modelling software from LM Technical Services (3D surface models) (Ca 1990-1993)	44
CAD – Information about AutoCAD (system for drafting and design for desktop computers) from FastCAD Europe Ltd., 1995	44
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Raytheon – Information about the RAYTHEON DE-719B FATHEOMETER PRECISION SURVEY DEPTH RECORDER and correspondence, including a paper – <i>Flemming, BW: Sidescan sonar, a practical guide (University of Capetown, Department of Geology, Technical Report, 7/ International Hydrographic Review, 52(1), 1976)</i> and data of depth recorder survey – Marchwood, 5 December 1979.	44
Batteries and Radios – Battery and radio manufacturing literature.	45
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<p>Miscellaneous file- Administration (continued)</p> <p>Survey reference/lines/ data and coordinate sheets/ Sedimentology practical work/ Summary of analysis (of grain) procedures/ representation of data/ Statistical analysis of data/ Explanation of statistical measures/ Principle of pipette analysis/ Grain size scales for sediments/ Particle size analysis/ Grading analysis of sand Samples/ Sediment sieving record sheet/ Pipette analysis/ Sample grain analysis Sheet/ Triangulation Station information for ordnance Survey control information Sheet/ Ordnance Survey coordinate listings/ Hypack Survey Keyboard interrupts/ Differential RTCM reference station data/ Public speaking notes/ Coastal research Boat/ Sercel Manual/ Alloy and foundry information/ Electronic Pebbles for coastal research – correspondence and leaflets/ Photocopy of: <i>The Place Names of Hampshire Chapter XIII Settlement in Pre-Historic and Roman Times</i>/ Press cuttings/ IBM Computers/ notes and correspondence.</p>	45
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<p>The following files contain analysis of data, many in the format of computer printouts/ raw data sheets – sediment analysis sampling data/ tidal level analysis/ grading analysis of sand samples/ Tracer sands and sedimentary analysis forms/ Tracer sands and sedimentary analysis forms with particle size distribution curves – examples for boreholes / Spreadsheet format example for sediment analysis recording sheet/ Field data – sample/ A paper by <i>JR Scott: Some average sea spectra(wave heights)</i>/ impact assessment of projects etc. taken from the following locations, which can also include correspondence and reports. There is a file place name/prefix for each location.</p> <p>Files in boxes 46-68 (The files listed are those only present at time of listing)</p> <p>Keyhaven Marshes (Lymington and Keyhaven Salt Marsh Project) (New Forest Marshes)/ Canford Cliffs/ Hamble/ Langstone/ Solent/ Swanage</p>	46
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Spring 1997	Autumn 2000														
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<u>Drawing No.</u>	<u>Bed Profile No.</u>	<u>Date Surveyed</u>																				
9 CBS/A/9A	C1-15	July 1974																				
10 CBS/A/10B	C6-9	July 1974																				
16 CBS/A/16A	C1-5	3 October 1974																				
17 CBS/A/17A	C6-9	3 October 1974																				
33 CBS/A/33A	C1-5	13 March 1975																				
34 CBS/A/34A	C6-9	13 March 1975																				

Poole and Christchurch Bays Research Project – Bed profiles (continued)

CBS Series

<u>Drawing No.</u>	<u>Bed Profile No.</u>	<u>Date Surveyed</u>
35 CBS/A/35A	D1-2	13 March 1975
44 CBS/A/44A	C1-5	28 May 1975
45 CBS/A/45A	C6-9	28 May 1975
62 CBS/A/62A	C1-5	4-6 September 1975
63 CBS/A/63A	C6-9	4-6 September 1975
64 CBS/A/64A	D1-2	4-6 September 1975
67 CBS/A/67A	C1-5	19 November 1975
68 CBS/A/68A	C6-9	19 November 1975
69 CBS/A/69A	D1-2	19 November 1975
70 CBS/A/70	C1-5	17 February 1976
71 CBS/A/71	C6-9	17 February 1976
72 CBS/A/72	D1-3	17 February 1976
82 CBS/A/82	C1-5	14 May 1976
83 CBS/A/83	C1-5	14 May 1976
84 CBS/A/84	D1-3	14 May 1975
85 CBS/A/85	C1-5	25 August 1976
86 CBS/A/86	C6-9	25 August 1976
87 CBS/A/87	D1-3	25 August 1976

CBP Series

<u>Drawing No.</u>	<u>Bed Profile No.</u>	<u>Date Surveyed</u>
CBP/5/1A	C1-5	21-23 March 1977
CBP/5/1A	C6	4 April 1977
CBP/5/2	C7-9	4 April 1977
CBP/5/3	C1-6	1 June 1977
CBP/5/4	C7-9, D1-3	1-2 June 1977
CBP/5/5	C1-6	15 September 1977
CBP/5/6	C7-9, D1-3	15-16 September 1977
CBP/5/7	C1-6	6-9 April 1978
CBP/5/8	C7-9, D1-3	6-9 April 1978
CBP/5/9	C1-6	17-20 September 1978
CBP/5/10	C6-9, D1-3	17-20 September 1978

E Series

<u>Drawing No.</u>	<u>Bed Profile No.</u>	<u>Sheet No.</u>
E.252/40/15	C1-6	1
E.252/40/16	C7, 8, 8A, 9, 10, 11	2
E.252/40/17	D1-3	3
E.252/40/18	C7-11	1
E.252/40/29	C1-6	1
E.252/40/30	C7-11	2
E.252/40/31	D1-3	3

Bournemouth Borough Council, Co-ordinating Engineers, Sir William Halcrow and Partners.

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Poole and Christchurch Bays Research Project – Bed profiles (continued)

CR Series

<u>Drawing No.</u>	<u>Bed Profile No.</u>	<u>Sheet No.</u>
CR/09/80/1040	C1-6	1
CR/09/80/1041	C7-11	2
CR/09/80/1042	D1-3	3
CR/01/81/1057	C7-11	1
CR/04/81/1065	C1-6	1
CR/04/81/1066	C7-11	2
CR/04/81/1067	D1-3	3
CR/10/81/1076	C1-6	1
CR/10/81/1077	C7-11	2
CR/10/81/1078	D1-3	3
CR/04/82/1087	C1-6	1
CR/04/82/1088	C7-11	2
CR/04/82/1089	D1-3	3
CR/09/83/1091	C1-6	1
CR/09/82/1092	C7-11	2
CR/09/82/1093	D1-3	3
CR/03/83/1102	C1-6	1
CR/03/83/1103	C7-11	2
CR/03/83/1104	D1-3	3
CR/04/83/1105	C1-6	1
CR/04/83/1106	C7-11	2
CR/04/83/1107	D1-3	3
CR/04/83/1115	C7-11	1
CR/11/83/1116	C1-6	1
CR/11/83/1117	C7-11	2
CR/11/83/1118	D1-3	3
CR/03/84/1127	C1-6	1
CR/03/84/1128	C7-11	2
CR/03/84/1129	D1-3	3
CR/09/84/1138	C1-6	1
CR/09/84/1139	C7-11	2
CR/09/84/1140	D1-3	3
CR/04/85/1151	C1-6	1
CR/04/85/1152	C7-11	2
CR/04/85/1153	D1-3	3

Barton-on-Sea cliff stabilization works.

Survey of beach feed deposition

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B.S.D. (Beach Survey Deposition) Nos. 74 & 75 Sheets 1-2 9 September 1976

B.S.D. (Beach Survey Deposition) Nos. 76 & 77 Sheets 1-2 1 June 1977

Bournemouth Borough Council, Poole and Christchurch Bays Research Project
 Barton Beach Profiles and Hydrographic Profiles. Survey by the Department of Civil
 Engineering, Southampton University.

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<u>Drawing No.</u>	<u>Date Surveyed</u>
SCE/H/1	1-2 June 1977
SCE/H/2	16-19 October 1977

Bournemouth Borough Council, Poole and Christchurch Bays Research Project
 Hydrographic Profiles. Survey by the Department of Civil Engineering, Southampton
 University.

<u>Drawing No.</u>	<u>Hydrographic Profile</u>	<u>Date Surveyed</u>
SCE/H/3	HE 4-25	14-18 January 1978
SCE/H/4	HE 4-25	27 April 1978

Bournemouth Borough Council, Co-ordinating Engineers, Sir William Halcrow and
 Partners. Barton Beach Profiles, surveyed by the Department of Civil Engineering,
 Southampton University

Barton Beach Profiles

<u>Drawing No.</u>	<u>Date</u>	<u>Beach Profile No.</u>	<u>Date Surveyed</u>
SCE/G/1B	April 1977	E1-17	8-10 March 1977
SCE/G/2B	May 1977	E1-10	19-21 April 1977
SCE/G/3B	May 1977	E11-20	19-21 April 1977
SCE/G/4	May 1977	E21-27	19-21 May 1977
SCE/G/5A	June 1977	E1-10	18-21 May 1977
SCE/G/6A	June 1977	E11-20	18-21 May 1977
SCE/G/7	June 1977	E21-27	18-21 May 1977
SCE/G/8	July 1977	E1-10	17-20 June 1977
SCE/G/9	July 1977	E11-20	17-20 June 1977
SCE/G/10	July 1977	E21-27	17-20 June 1977
SCE/G/11	August 1977	E1-10	1-4 August 1977
SCE/G/12	August 1977	E11-20	1-4 August 1977
SCE/G/13	August 1977	E21-27	1-4 August 1977
SCE/G/14	1977	E1-10	14-17 August 1977
SCE/G/14A	1977	E1-10	14-17 August 1977
SCE/G/15	1977	E11-20	14-17 August 1977
SCE/G/16	1977	E21-27	14-17 August 1977
SCE/G/17	1977	E1-10	14-17 September 1977
SCE/G/18	1977	E11-20	14-17 September 1977
SCE/G/18A	1977	E11-20	14-17 September 1977
SCE/G/19	1977	E21-27	14-16 September 1977
SCE/G/20	1977	E1-10	12-14 October 1977
SCE/G/21	1977	E11-20	12-14 October 1977
SCE/G/22	1977	E21-27	12-14 October 1977

Bournemouth Borough Council, Co-ordinating Engineers, Sir William Halcrow and Partners. Barton Beach Profiles, surveyed by the Department of Civil Engineering, Southampton University

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Barton Beach Profiles

<u>Drawing No.</u>	<u>Date</u>	<u>Beach Profile No.</u>	<u>Date Surveyed</u>
SCE/G/23	1977	E1-10	22-25 November 1977
SCE/G/24	1977	E11-20	22-25 November 1977
SCE/G/25	1977	E21-27	22-25 November 1977
SCE/G/26	1977	E1-10	19-21 December 1977
SCE/G/27	1977	E11-20	19-21 December 1977
SCE/G/28	1977	E21-27	19-21 December 1977
SCE/G/29	1977 (1978)	E1-10	14-18 January 1977 (1978)
SCE/G/30	1977 (1978)	E11-20	14-18 January 1977 (1978)
SCE/G/31	1977 (1978)	E21-27	14-18 January 1977 (1978)
SCE/G/32	1978	E1-10	15-17 February 1978
SCE/G/33	1978	E11-20	15-17 February 1978
SCE/G/34	1978	E21-27	15-17 February 1978
SCE/G/35	1978	E1-10	8-10 March 1978
SCE/G/36	1978	E11-20	7-9 March 1978
SCE/G/37	1978	E21-27	8-10 March 1978
SCE/G/38	1978	E1-10	7-10 April 1978
SCE/G/39	1978	E11-20	7-10 April 1978
SCE/G/40	1978	E21-27	7-10 April 1978
SCE/G/41	1978	E1-10	8-10 May 1978
SCE/G/42	1978	E11-20	8-10 May 1978
SCE/G/43	1978	E21-27	8-10 May 1978
SCE/G/44	1978	E1-10	5-7 June 1978
SCE/G/45	1978	E11-20	5-7 June 1978
SCE/G/46	1978	E21-27	5-7 June 1978
SCE/G/47	1978	E1-10	4-6 July 1978
SCE/G/48	1978	E11-20	4-6 July 1978
SCE/G/49	1978	E21-27	4-6 July 1978
SCE/G/50	1978	E1-10	2-4 August 1978
SCE/G/51	1978	E11-20	2-4 August 1978
SCE/G/52	1978	E21-27	2-4 August 1978
SCE/G/53	1978	E1-10	12-14 September 1978
SCE/G/54	1978	E11-20	12-14 September 1978
SCE/G/55	1978	E21-27	12-14 September 1978

Bournemouth Borough Council, Co-ordinating Engineers, Sir William Halcrow and Partners. Barton Beach Profiles, surveyed by the Department of Civil Engineering, Southampton University

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Barton Beach Profiles

SCE/G/56	1978	E1-10	9-11 October 1978
SCE/G/57	1978	E11-20	9-11 October 1978
SCE/G/58	1978	E21-27	9-11 October 1978
SCE/G/59	1978	E1-10	10-13 November 1978
SCE/G/60	1978	E11-20	10-13 November 1978

<p>Bournemouth Borough Council, Co-ordinating Engineers, Sir William Halcrow and Partners. Barton Beach Profiles, surveyed by the Department of Civil Engineering, Southampton University</p> <p>Barton Beach Profiles</p> <table border="0"> <tr> <td>SCE/G/60</td> <td>1978</td> <td>E11-10</td> <td>10-13 November 1978</td> </tr> <tr> <td>SCE/G/61</td> <td>1978</td> <td>E21-27</td> <td>10-13 November 1978</td> </tr> <tr> <td>SCE/G/62</td> <td>1979</td> <td>E1-10</td> <td>24-26 January 1979</td> </tr> <tr> <td>SCE/G/63</td> <td>1979</td> <td>E11-20</td> <td>24-26 January 1979</td> </tr> <tr> <td>SCE/G/64</td> <td>1979</td> <td>E21-27</td> <td>24-26 January 1979</td> </tr> <tr> <td>SCE/G/65</td> <td>1979</td> <td>E1-10</td> <td>20-22 February 1979</td> </tr> <tr> <td>SCE/G/66</td> <td>1979</td> <td>E11-20</td> <td>20-22 February 1979</td> </tr> <tr> <td>SCE/G/67</td> <td>1979</td> <td>E21-27</td> <td>20-22 February 1979</td> </tr> </table>	SCE/G/60	1978	E11-10	10-13 November 1978	SCE/G/61	1978	E21-27	10-13 November 1978	SCE/G/62	1979	E1-10	24-26 January 1979	SCE/G/63	1979	E11-20	24-26 January 1979	SCE/G/64	1979	E21-27	24-26 January 1979	SCE/G/65	1979	E1-10	20-22 February 1979	SCE/G/66	1979	E11-20	20-22 February 1979	SCE/G/67	1979	E21-27	20-22 February 1979	73
SCE/G/60	1978	E11-10	10-13 November 1978																														
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SCE/G/63	1979	E11-20	24-26 January 1979																														
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SCE/G/66	1979	E11-20	20-22 February 1979																														
SCE/G/67	1979	E21-27	20-22 February 1979																														
<p>Published Reports issued by the Department of Civil Engineering, Southampton University, during the Projects:</p> <ul style="list-style-type: none"> December 1977- Goold, DGR, Department of the Environment, Sir William Halcrow and Partners, Poole and Christchurch Bays Projects. Surveying at East Barton, Report No. CE/W/77/10, Various pagination. October 1982 – Hodder, JP: Poole/Christchurch Bay Research Project – research on coastal sediment movement. 13pp. 2 copies 1984 – Clarke, D: Scigraf and regress, graph plotting and curve fitting programmes for the BBC microcomputer.34pp. Summer 1987 – Riley, MJ: Hengistbury Head Project – sediment sampling and analysis, Un-paginated. 2 copies 22 October 1987 – Hydraulics Research Ltd., Wallingford: Monitoring: Poole and Christchurch Bays, Hydrographic and Topographic Surveys. Interim Progress Report, Un-paginated. December 1987 – Riley, MJ: Hurst Project, sediment analysis report, Un-paginated. 26 February 1988 – Riley, MJ: Hydraulics Research Ltd., Wallingford, Department of Civil Engineering, Southampton University – Wave run up observation M/M/4/5 Contract Report 26 February 1988, Un-paginated. 	73																																
<p>Published Reports issued by the Department of Civil Engineering, Southampton University, during the Projects:</p> <ul style="list-style-type: none"> 26 February 1988 – Riley, MJ: Hydraulics Research Ltd., Wallingford – Monitoring Poole and Christchurch Bays, Hydrographic and Topographic Surveys, Final Report, Un-paginated. Enclosed a letter from MJ Riley to Dr SW Huntington, Head of Maritime Engineering Department, Hydraulics Research Ltd, with comments about Hurst Spit. Summer 1988 – Riley, MJ: Hengisbury Head Monitoring Project , Sediment sampling and analysis, Un-Paginated. 2 Copies Autumn 1988 – Riley, MJ: Hengisbury Head Monitoring Project, Sediment sampling and analysis, Un-paginated. Autumn 1988 - Riley, MJ: Hurst Beach Monitoring Project, Sediment sampling and analysis, Un-paginated. Spring 1989 – Riley, MJ: Bournemouth Beach Monitoring Project, Sediment sampling and analysis, Un-paginated. 	74																																
<p>Hampshire and Wight Trust for Maritime Archaeology, Annual Report, 1996</p>	74																																

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