Cleaning Up the Thames: Success or Failure?

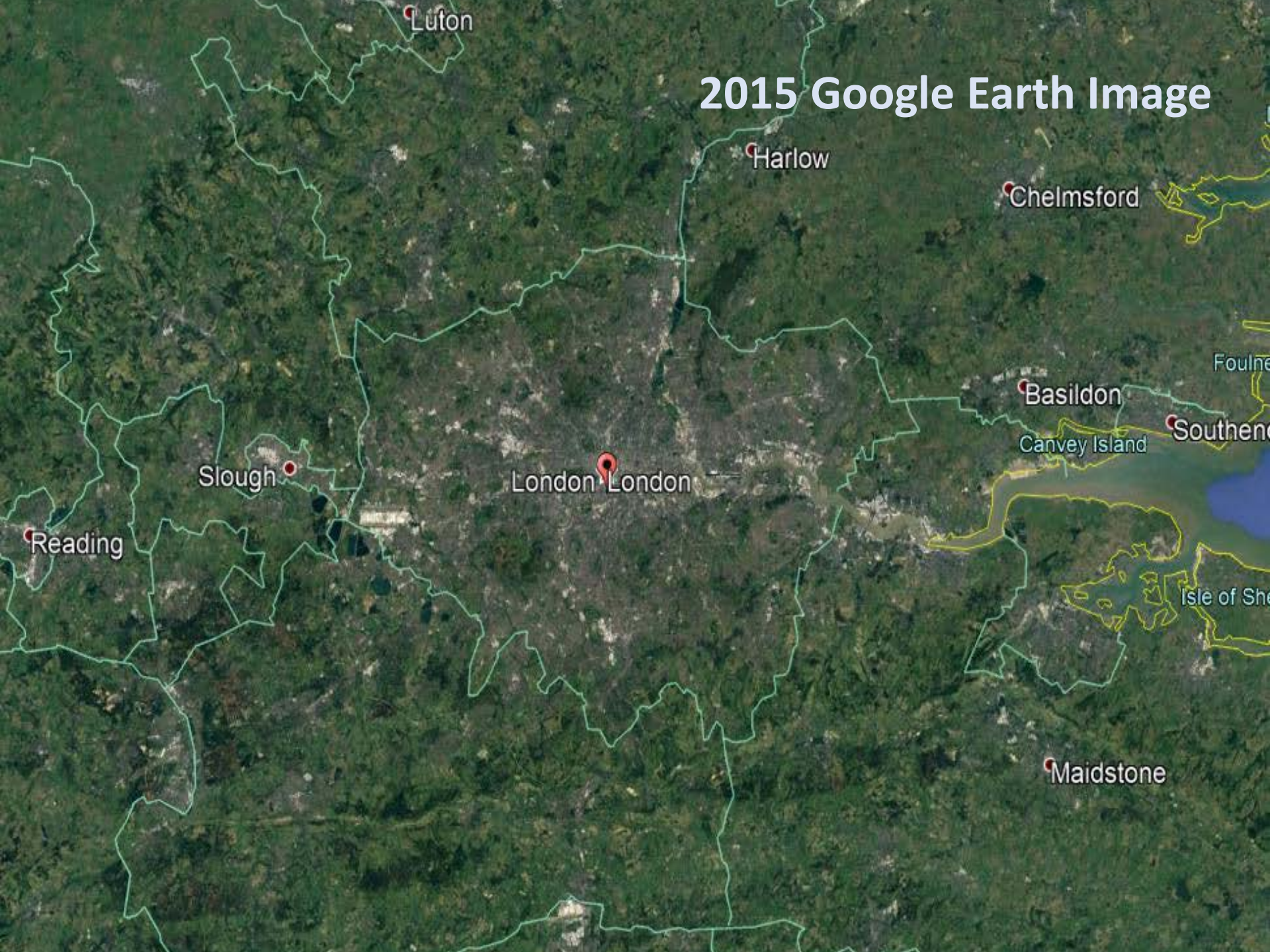
Carolyn Roberts

Frank Jackson Professor of Environment,

Gresham College, London

and

Water and Environment Consultant


2015 Google Earth Image
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Harlow
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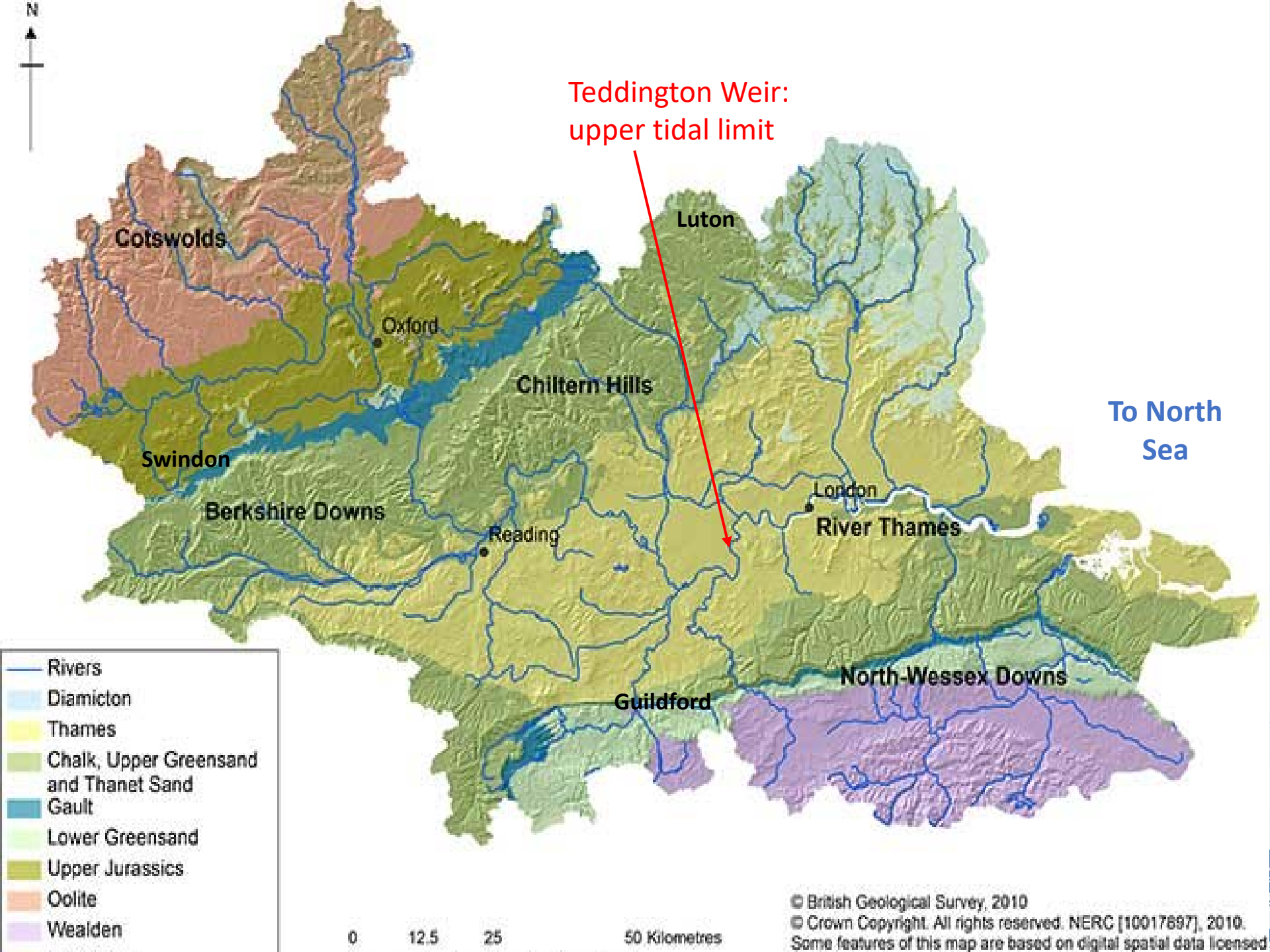
Canvey Island
Slough
London
London
Reading
Maidstone



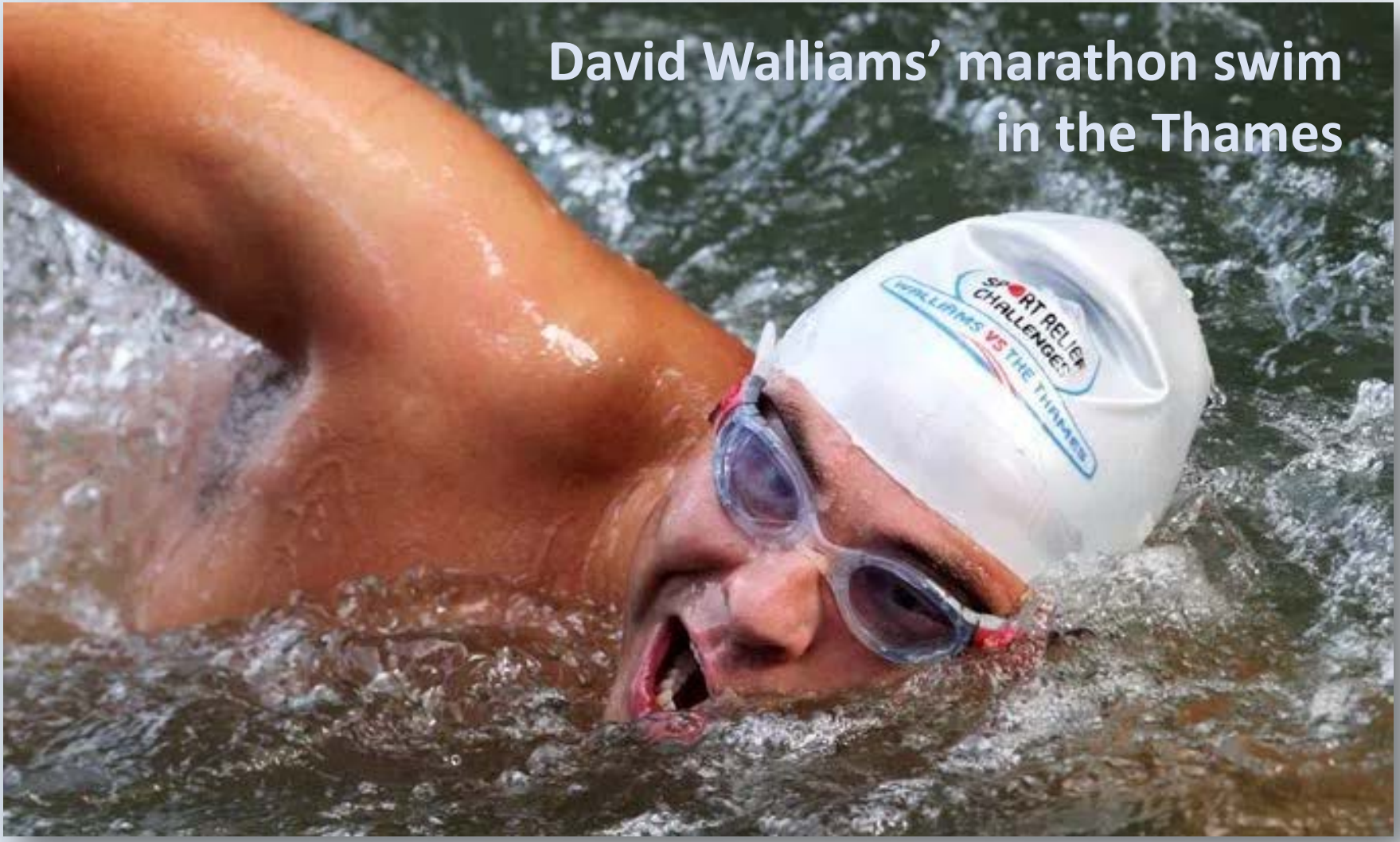
THE "SILENT HIGHWAY"-MAN.

THE LONDON BATHING SEASON.

"COME, MY DEAR!—COME TO ITS OLD THAMES, AND HAVE A NICE BATH!"

Sewage foam collecting around boats at Bourne End, Thames, 2014

David Walliams' marathon swim in the Thames



Getty image


2002 Google Earth Image of London
Edgware
Harrow
Wembley
Ilford
Dagenham
Hayes
London
London
Belvedere
Hounslow
Greater London
Sunbury-on-Thames
Mitcham
Bromley
Croydon
Orpington
Esher
Sutton
Image Landsat / Copernicus
Google Earth


Hampstead
Stoke Newington
River Lee
River Roding
Kilburn
Fleet
Islington
Bow
Tyburn
Westbourne
Barking Creek
Stamford Brook
Notting Hill
Oldbourne
Walbrook
Hounds Ditch
Blake Ditch
Erith
Counters Creek
Neckinger
Chelsea
Waterloo
Earl
Deptford Creek
Woolwich
Battersea
Kidbrooke
Eltham
Peck
Falcon Brook
Effra
Forest Hill
Roehampton
Wandle
Ravensbourne
Quaggy
Beverly Brook
Streatham
Graveney

‘In the first iawes appear’d that ugly monster.
Yclepèd Mud, which, when their oares did once stirre,
Belch’d forth an ayre, as hot as the muster
of all your night tubs, when the carts doe cluster,
Who shall discharge first his merd-ruinous load.’

Ben Jonson, writing about the River Fleet in 1616

The Diary of Samuel Pepys, Thursday 28 September 1665

"and so I to bed, and in the night was mightily troubled with a looseness (I suppose from some fresh damp linen that I put on this night), and feeling for a chamber-pott, there was none, I having called the mayde up out of her bed, she had forgot I suppose to put one there; so I was forced in this strange house to rise and shit in the chimney twice…"


S. Paules Churc
THAMESIS
The Bear Gardne


The growth of London (1590–1990)
London built-up areas
1990
1890
1790
1690
1590
Parks and open spaces
HENDON
HORNSEY
HIGHGATE
WALTHAMSTOW
HAMPSTEAD
HOLLOWAY
CLAPTON
CAMDEN
ISLINGTON
HACKNEY
STRATFORD
KILBURN
SHOREDITCH
KING'S CROSS
WEST HAM
ST. PANCRAS
FINSBURY
PADDINGTON
HOLBORN
STEPNEY
WESTMINSTER
CITY OF LONDON
POPLAR
ACTON
NOTTING HILL
LAMBETH
ROTHERHITHE
WAPPING
KENSINGTON
SOUTHWARK
BERMONDSEY
HAMMERSMITH
CHELSEA
WALWORTH
PECKHAM
GREENWICH
DEPTFORD
River Thames
CAMBERWELL
FULHAM
BATTERSEA
DULWICH
BLACKHEATH
BARNES
NEW CROSS
PUTNEY
KINGSTON
CLAPHAM
WANDSWORTH
BRIXTON
SYDENHAM
WIMBLEDON
STREATHAM
PENGE
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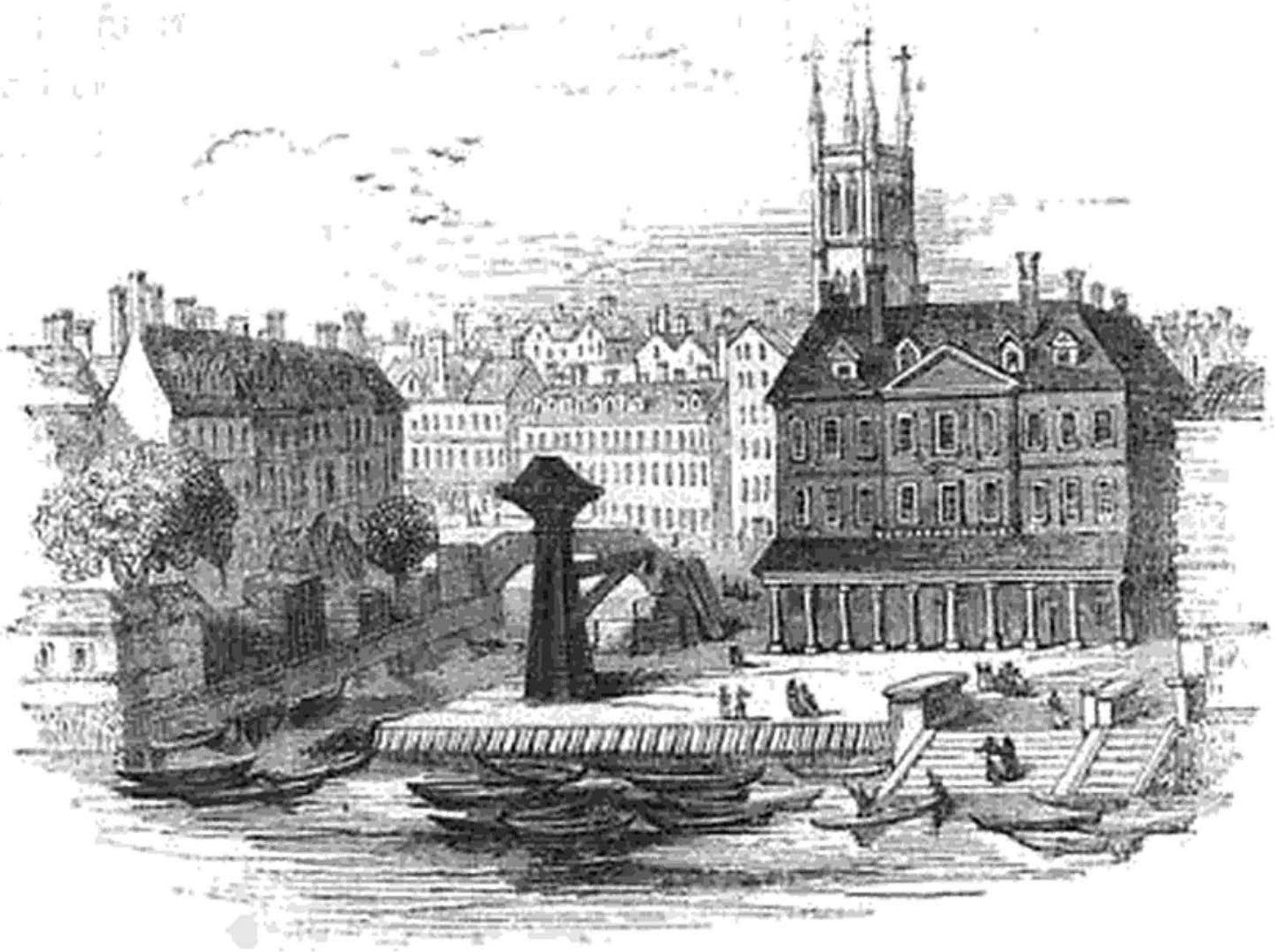
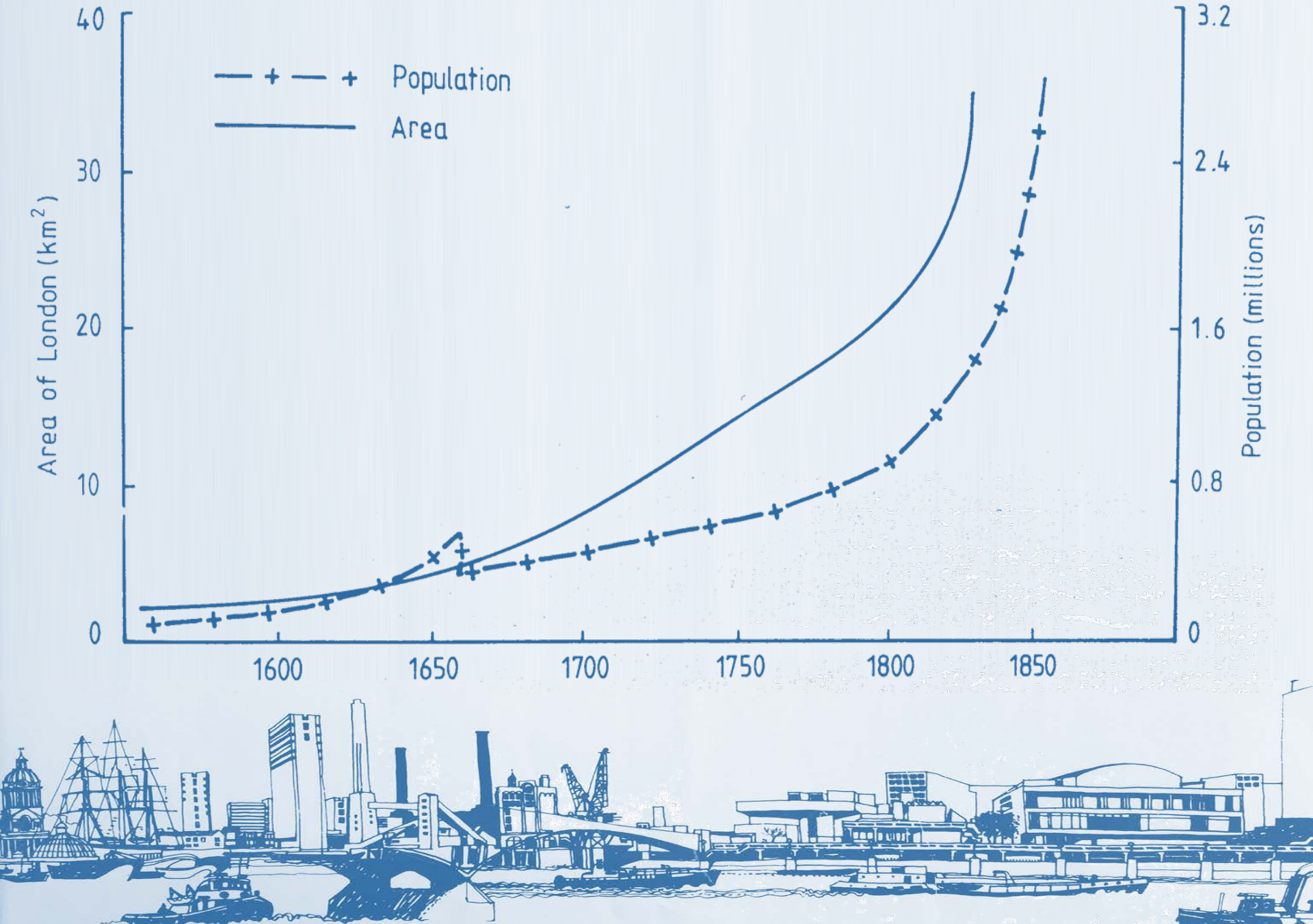


The confluence of the Fleet and the Thames, 1749

Date	
12th C	In the days of Fitzstephen, local fish an important part of the London diet; Richard I removed weirs to allow fish to pass up the Thames
1285	Edward I introduced a closed season for salmon in the Thames
14th C	Richard II added more legal protection for salmon and lampreys
1457	Four ‘great fish’ were caught In the Thames, probably two whales, a walrus and a narwhal (Cornish, 1902)
15th to 17th C	Many fish recorded
7th June 1749	47 salmon caught below Richmond
July 1766	130 salmon caught in one day in Thames
1810	3000 smelt and 10 salmon caught near Wandsworth
1819	Salmon, trout, grayling, perch, carp, tench, roach, dace, gudgeon, pike, eels, lampreys, plus sole, plaice, skate, halibut, haddock, oysters, mussels and prawns in the salt water (Fitter, 1945)


Population
Area
Area of London (km²)
Population (millions)
40
30
20
10
0
3.2
2.4
1.6
0.8
0
1600
1650
1700
1750
1800
1850

FARADAY GIVING HIS CARD TO FATHER THAMES;

And we hope the Dirty Fellow will consult the learned Professor.

Joseph Bazalgette's interceptor sewer system running along the Embankment. Bazalgette was Chief Engineer on London's Metropolitan Board of Works

Weir chamber under Hammersmith Road, on Counter's Creek sewer and low level sewer No 2.

Photograph: London County Council, 1907

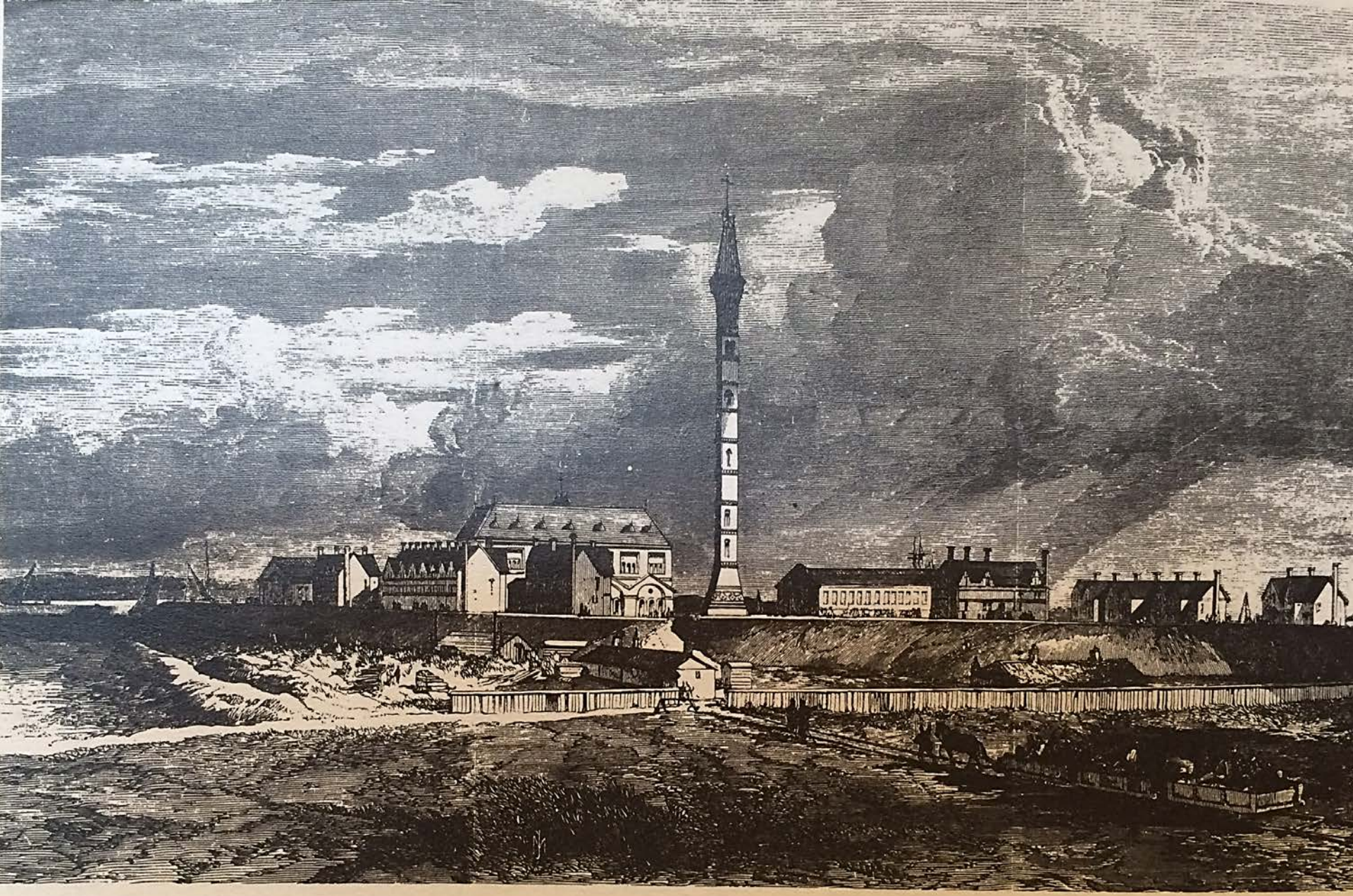


Figure 25. The Crossness (southern outfall) works, 1865 (from the *Illustrated London News*).

PLAN

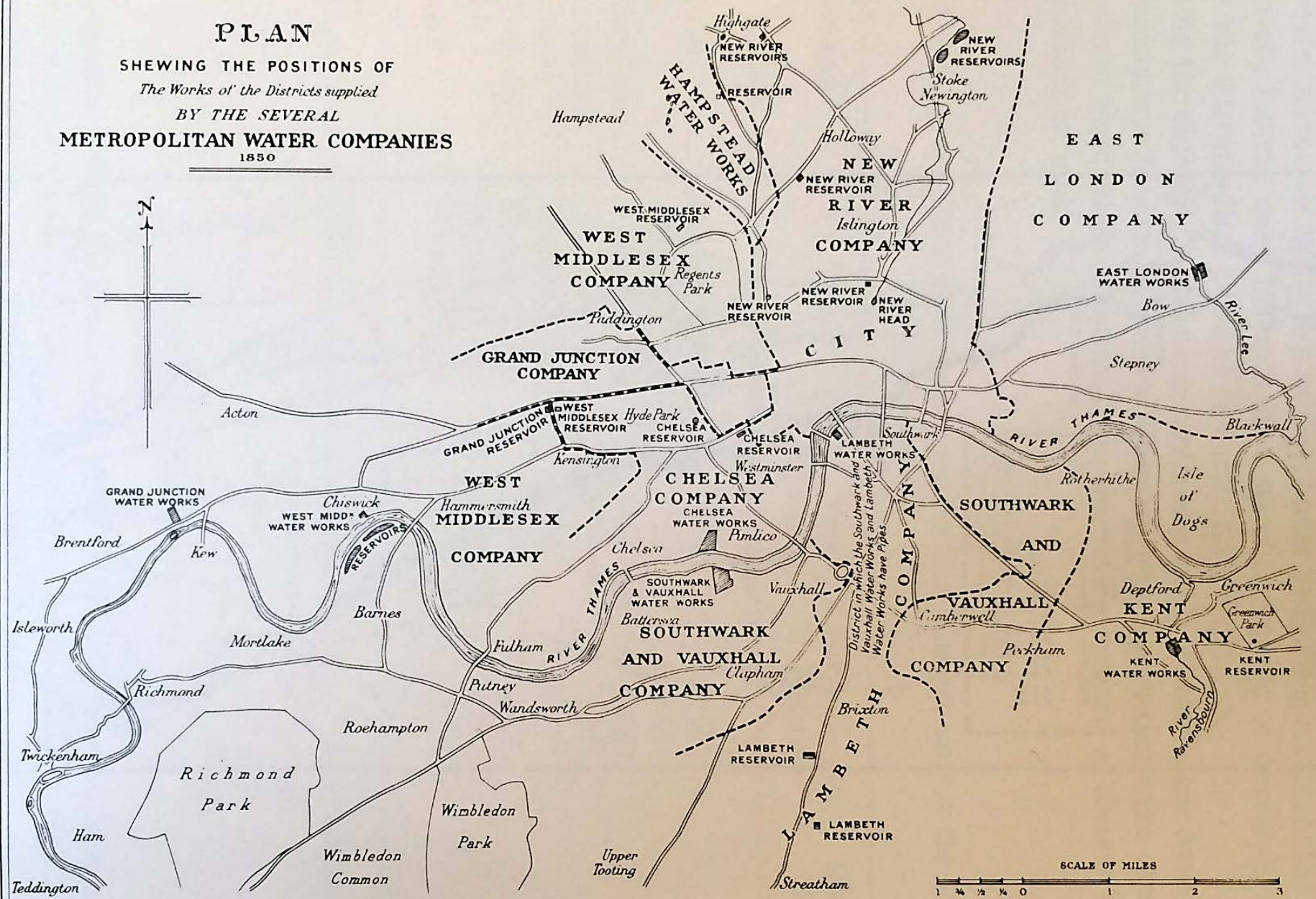
SHEWING THE POSITIONS OF

The Works of the Districts supplied

BY THE SEVERAL

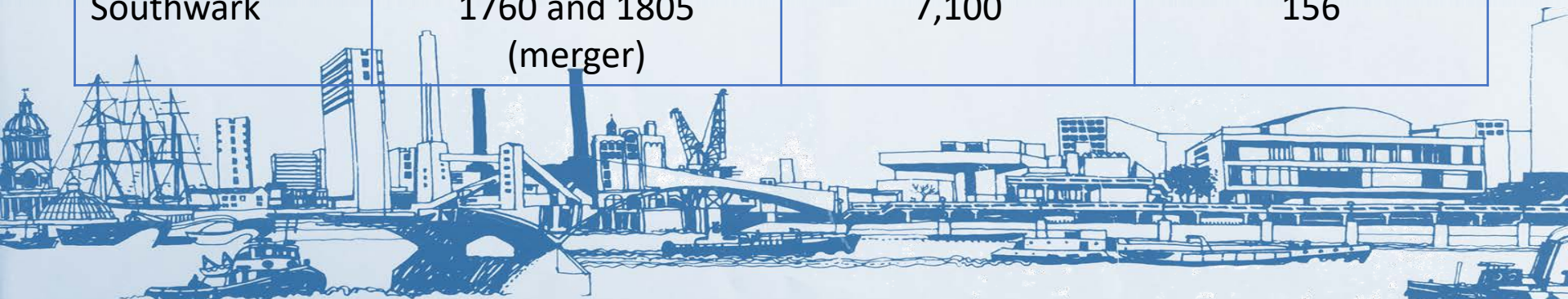
METROPOLITAN WATER COMPANIES

1850



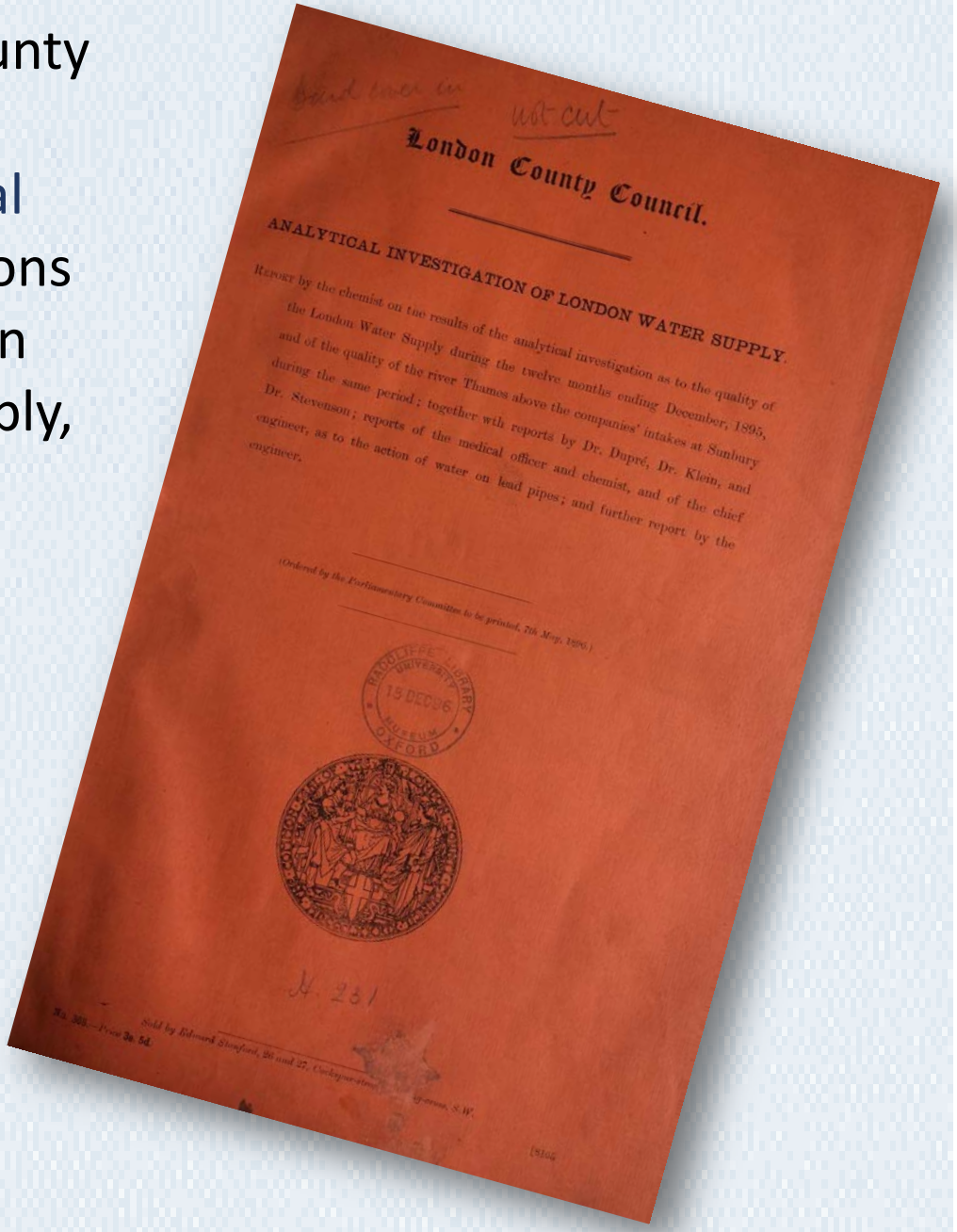
Companies drawing water from the Tidal Thames in the early nineteenth century (from Wood, 1982)

Water Company name	Date founded	No of houses supplied	Gallons per day (average)
New River (from Hertfordshire springs)	1619	73,212	241
Chelsea	1723	13,891	168
West Middlesex	1806	16,000	185
Grand Junction	1811	11,141	350
East London	1807	46,421	120
South London	1805	12,046	100
Lambeth	1785	16,682	124
Southwark	1760 and 1805 (merger)	7,100	156




EST 1873
NICHOLSON'S
FREEHOUSE
THE MUDLARK
THE MUDLARK
QUALITY CASK ALES
CRAFT BEERS
FINE WINES
FIRST FLOOR DINING ROOM AVAILABLE FOR HIRE
GREAT BRITISH PUB FOOD SERVED ALL DAY
SAUSAGE & CHOP House
THE MUDLARK

London County Council Analytical Investigations of London Water Supply, 1896



London County Council.

ANALYTICAL INVESTIGATION OF LONDON WATER SUPPLY.

Report by the chemist on the results of the analytical investigation as to the quality of the London Water Supply during the twelve months ending December, 1895, and of the quality of the river Thames above the companies' intakes at Sunbury during the same period; together with reports by Dr. Dupré, Dr. Klein, and Dr. Stevenson; reports of the medical officer and chemist, and of the chief engineer; as to the action of water on lead pipes; and further report by the engineer.

(Ordered by the Parliamentary Committee to be printed, 7th May, 1896.)

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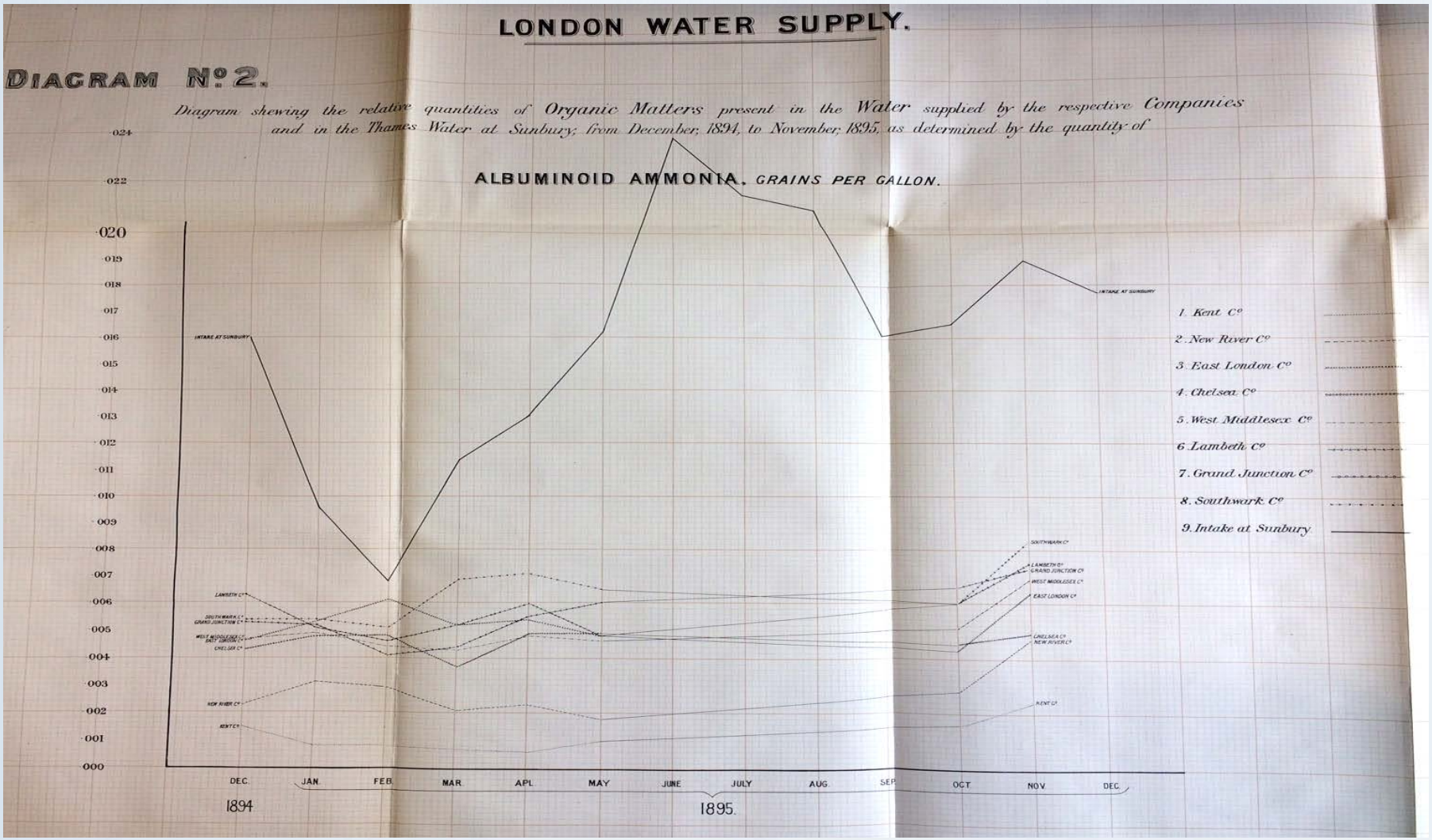
Sold by Edward Stanford, 26 and 27, Cockspur-street, Charing-cross, S.W.

LONDON WATER SUPPLY.

DIAGRAM Nº 2.

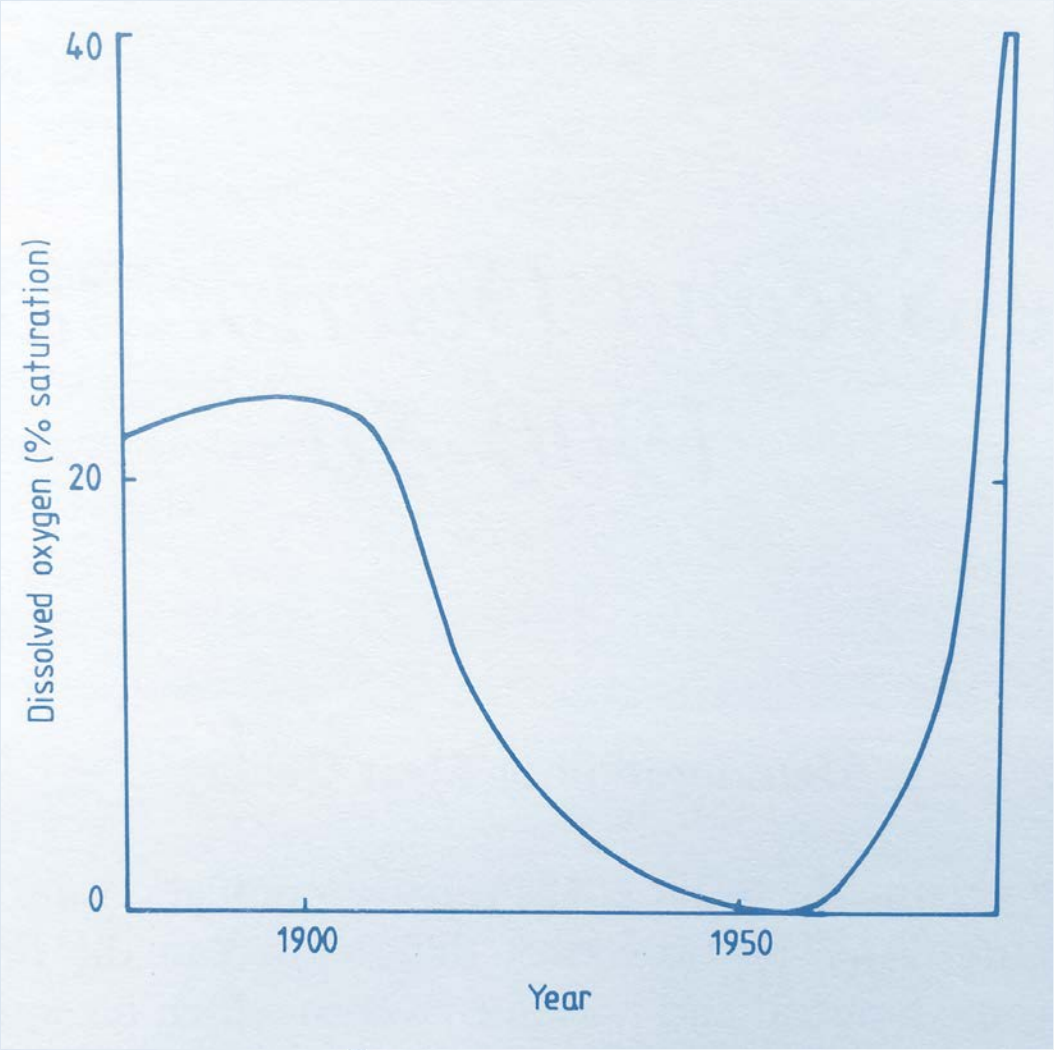
Diagram shewing the relative quantities of Organic Matters present in the Water supplied by the respective Companies and in the Thames Water at Sunbury, from December, 1894, to November, 1895, as determined by the quantity of

ALBUMINOID AMMONIA. *GRAINS PER GALLON.*



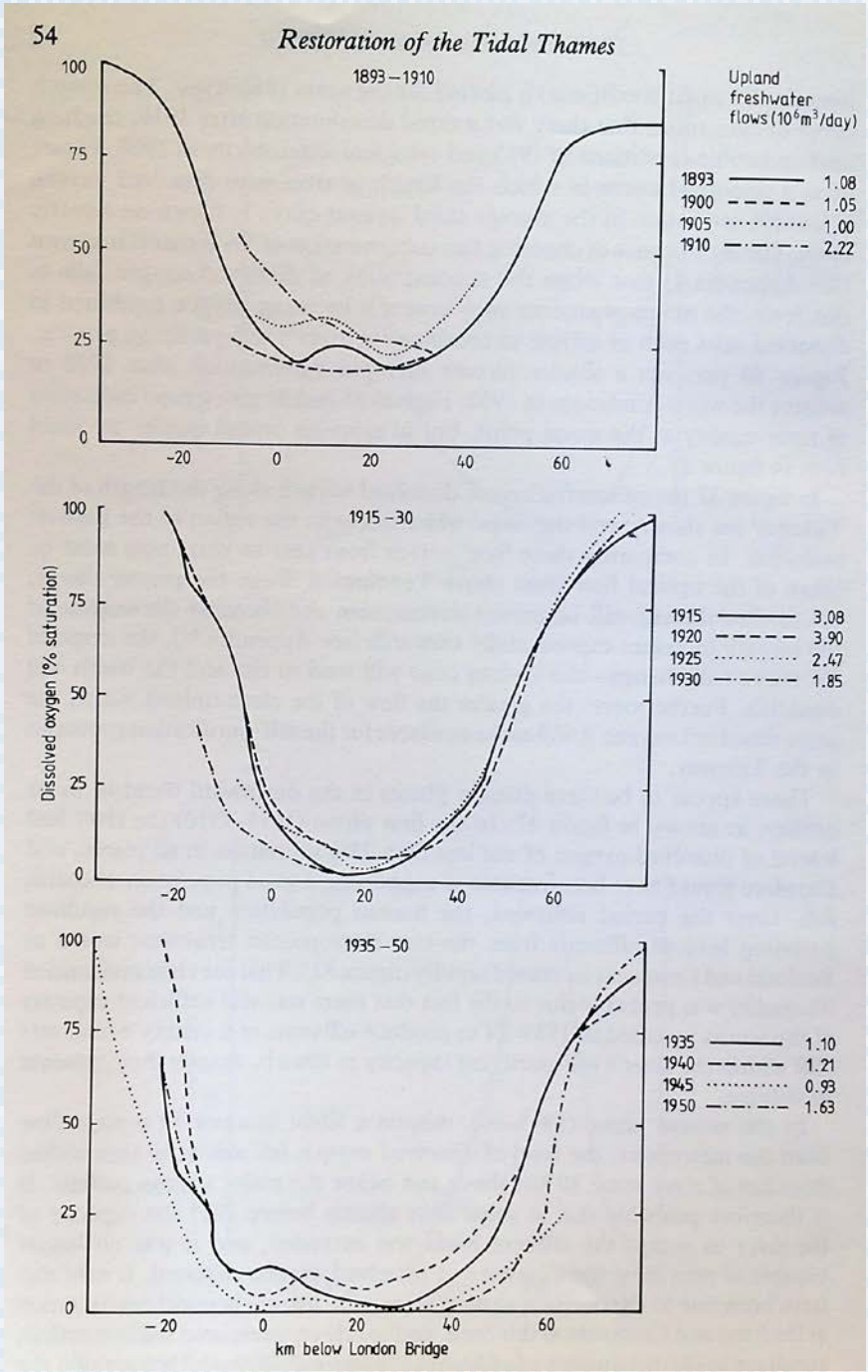
MICROCOSM dedicated to the London Water Company

A MONSTER SOUP ... THAMES WATER



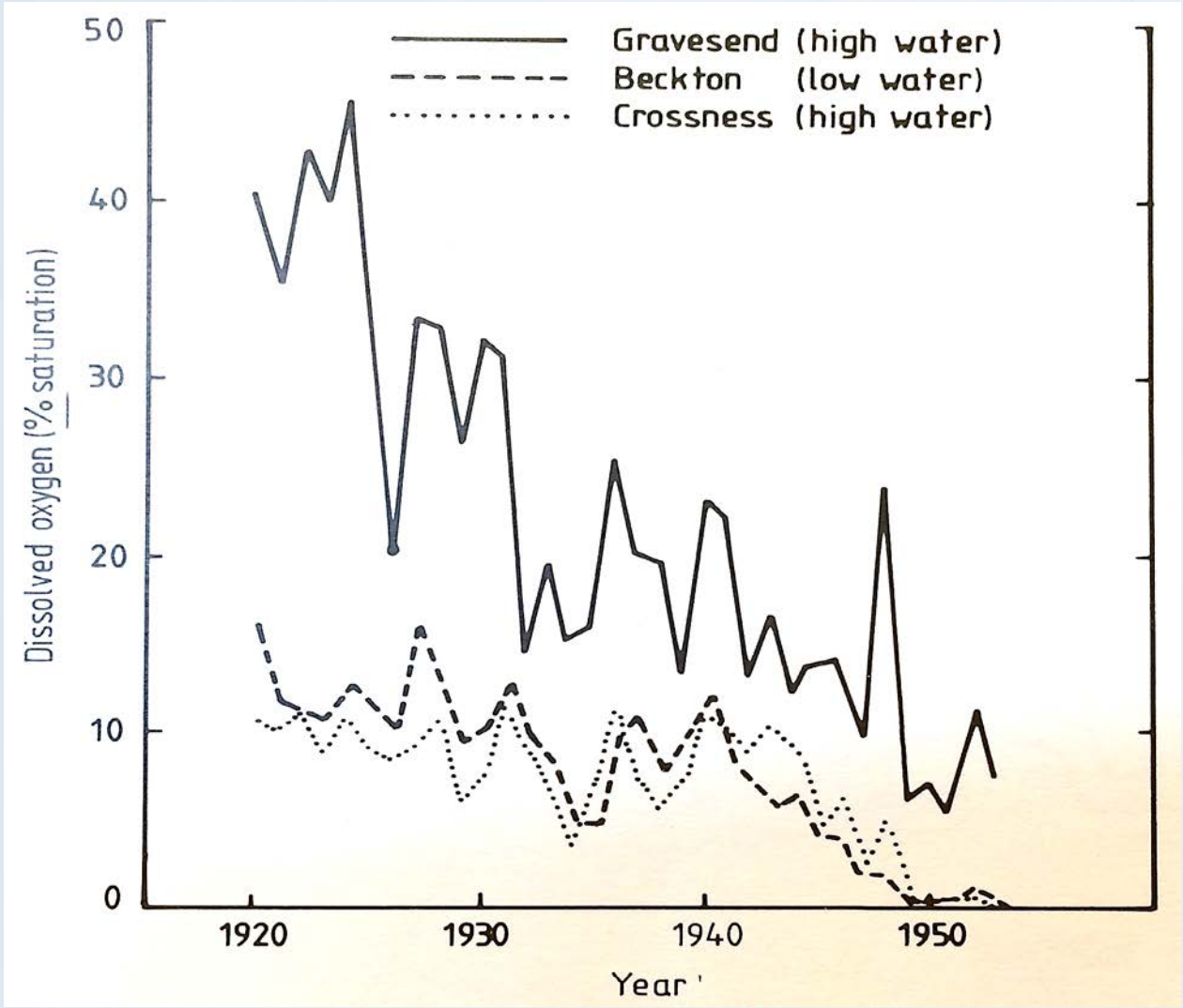
Summer/Autumn, average dissolved oxygen curve, at the lowest point, 1890-1970.

From Wood, 1982



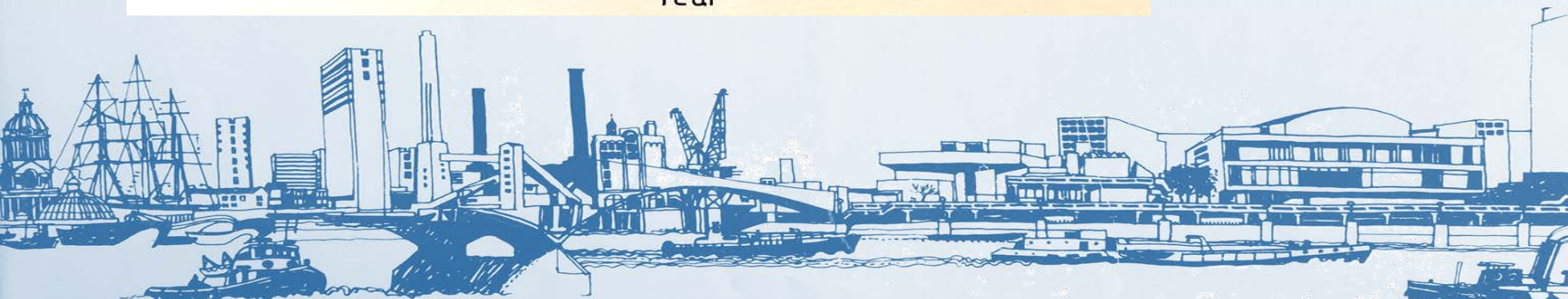
Autumn dissolved oxygen curves, 1893-1950 around London Bridge

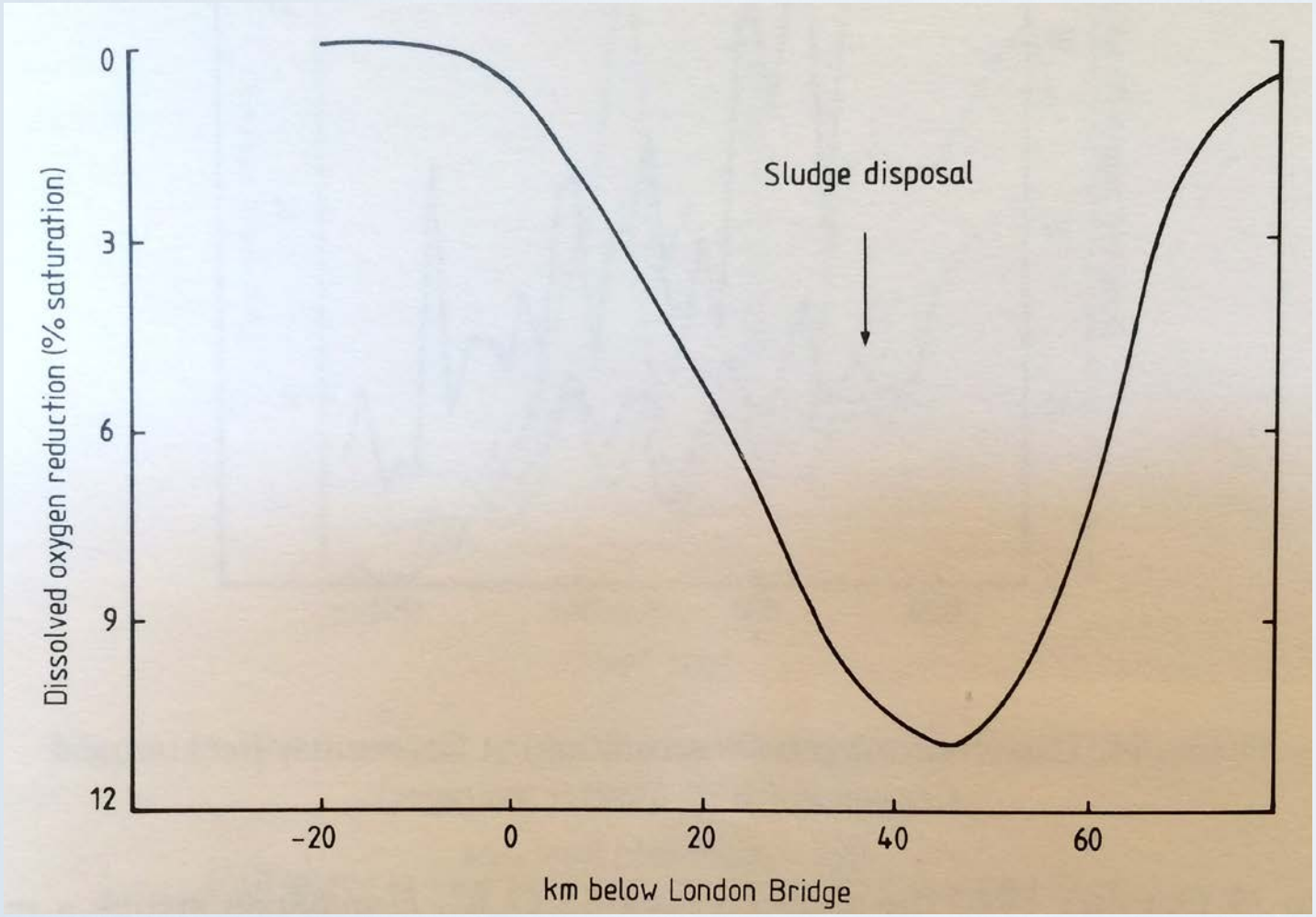
From Wood, 1982



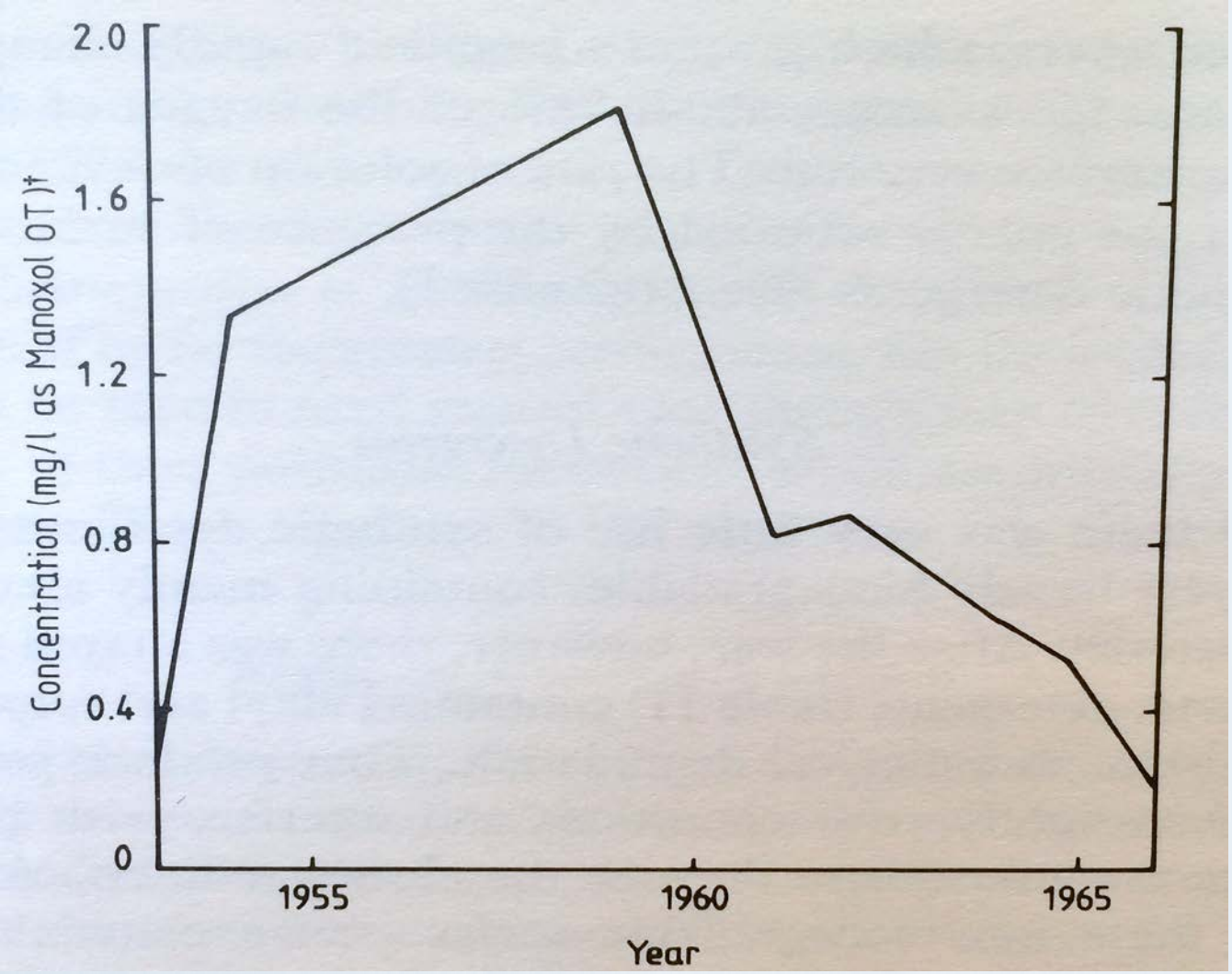
Autumn dissolved oxygen curves, at Gravesend, Beckton and Crossness, 1920-1955

From Wood, 1982



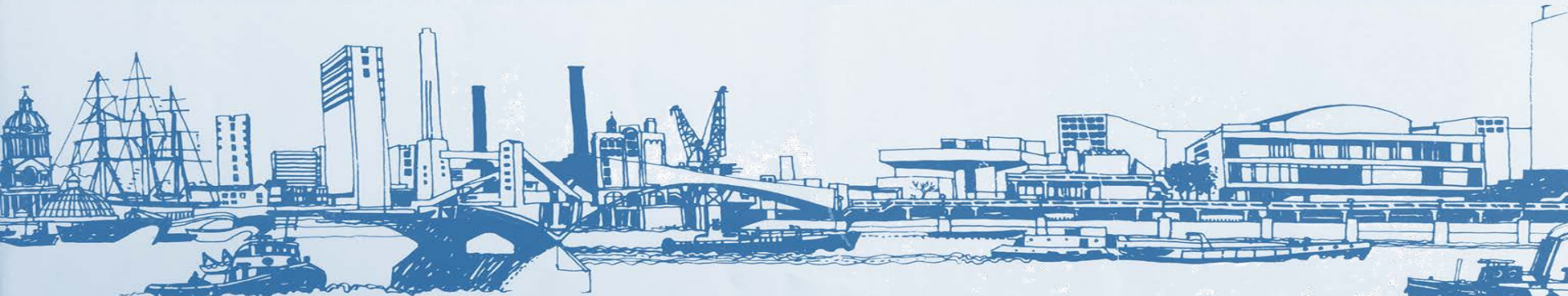


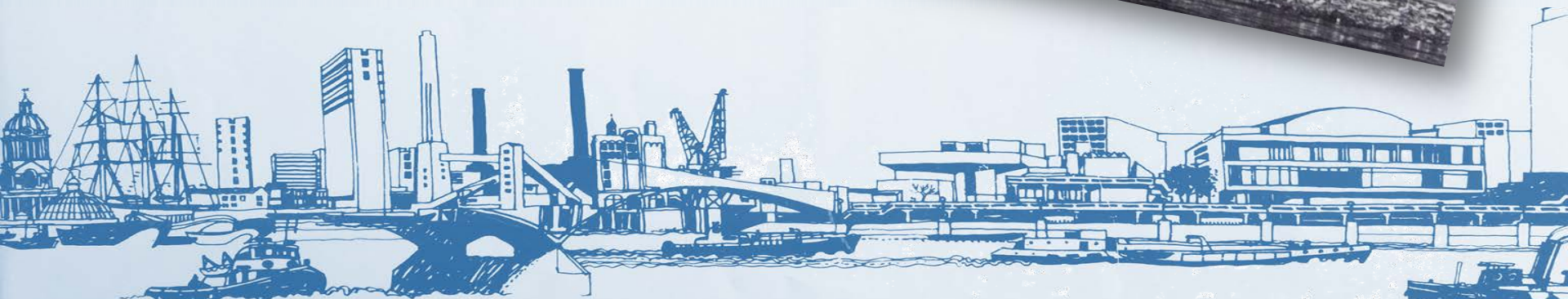
Autumn dissolved oxygen curves, around sludge disposal at Mucking Flats, 1940-1945
From Wood, 1982

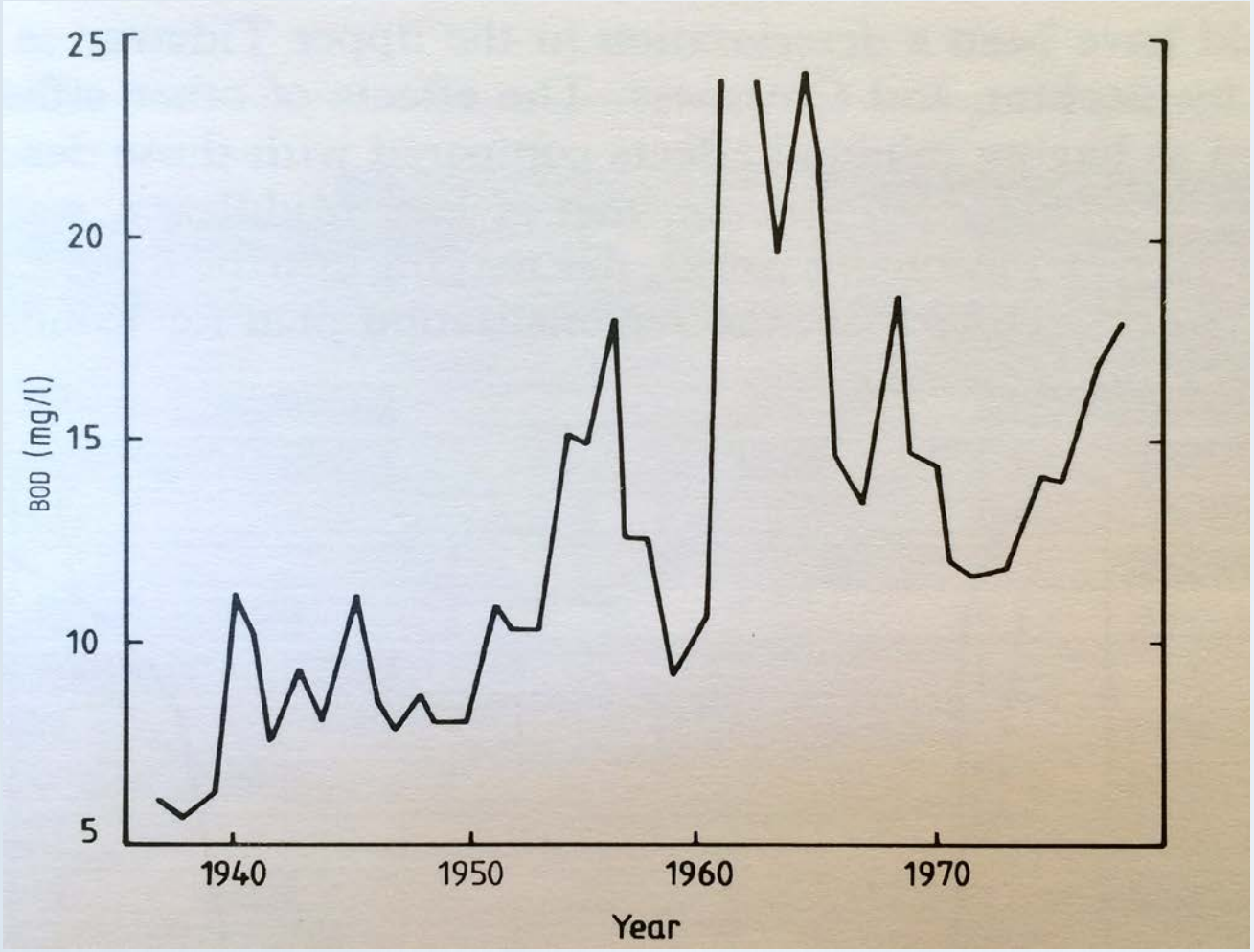


Concentration of synthetic detergents in the Thames off the metropolitan outfalls, 1950-1967

From Wood, 1982

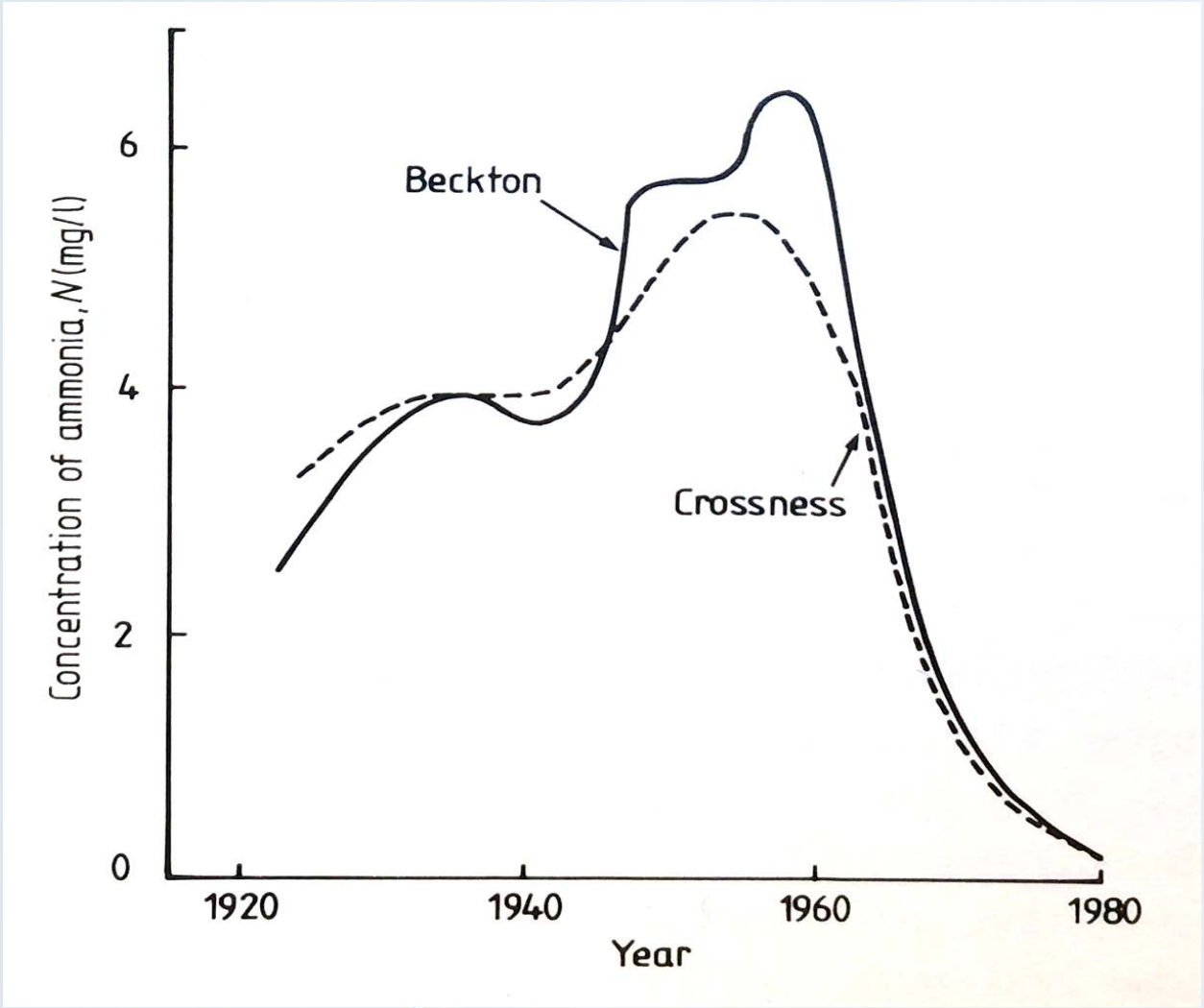






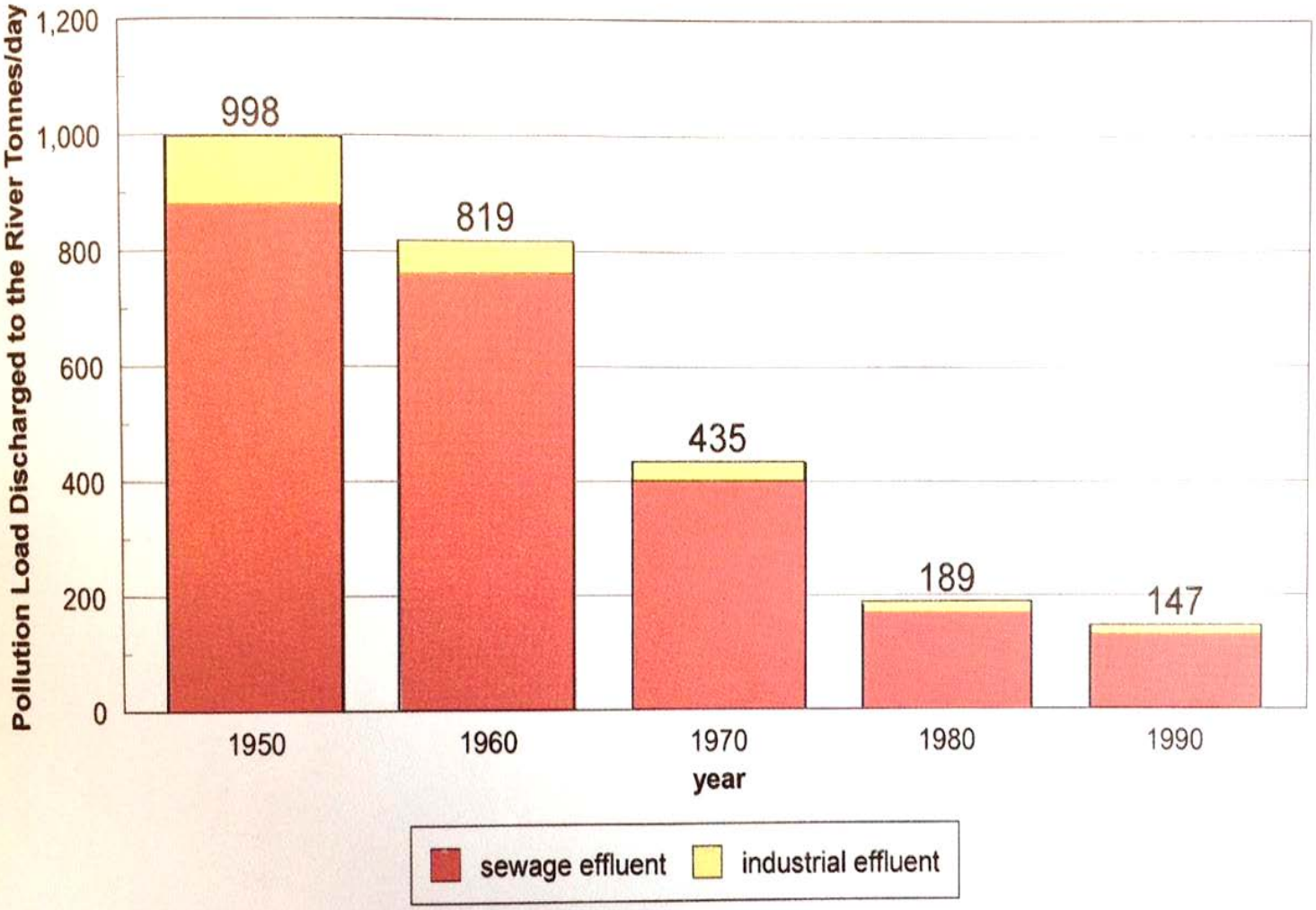
Rising Biological Oxygen Demand of effluent from Mogden works, 1935-1980

From Wood, 1982

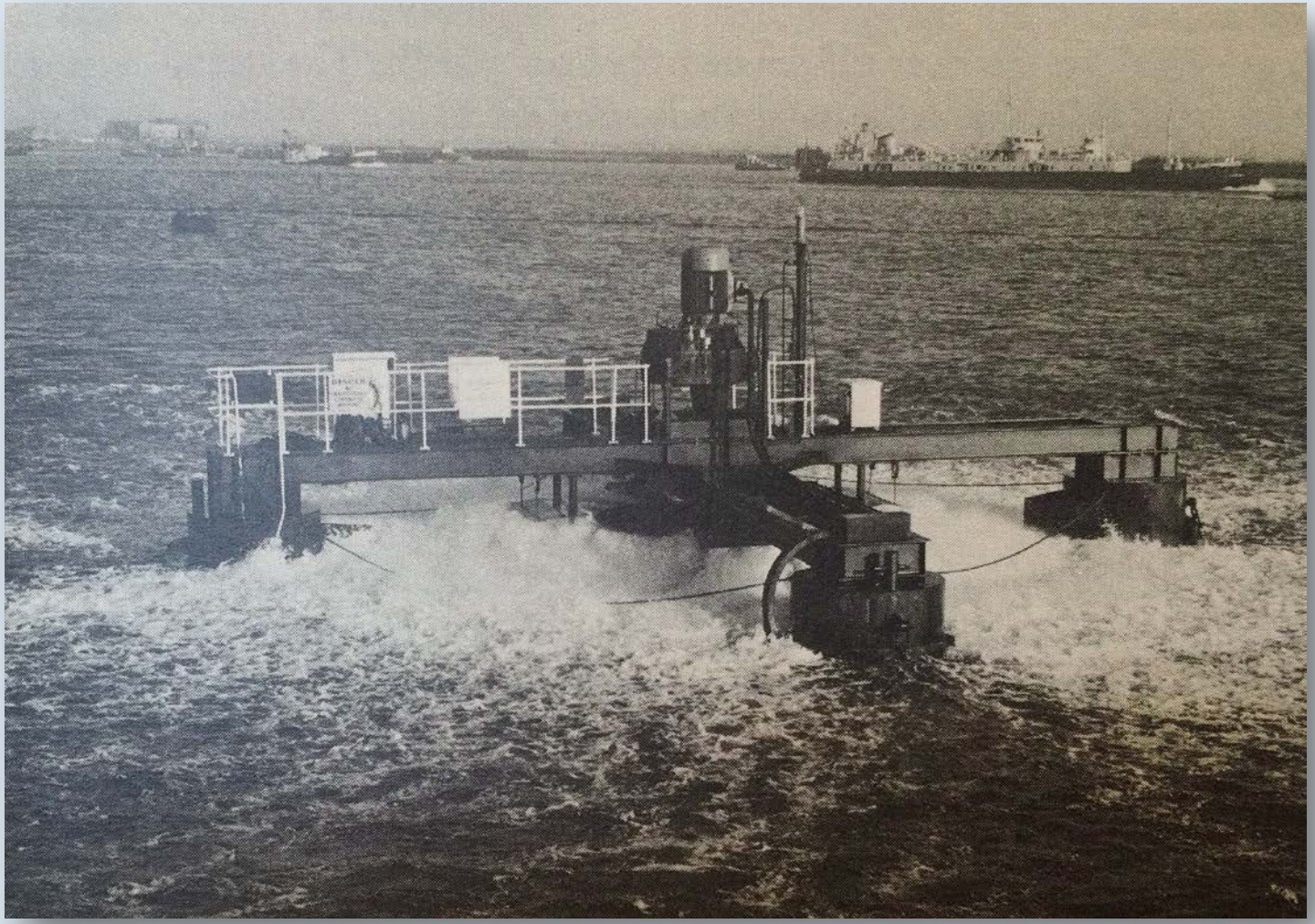


Ammonia in the Tideway off the metropolitan outfalls, 1920-1980

From Wood, 1982



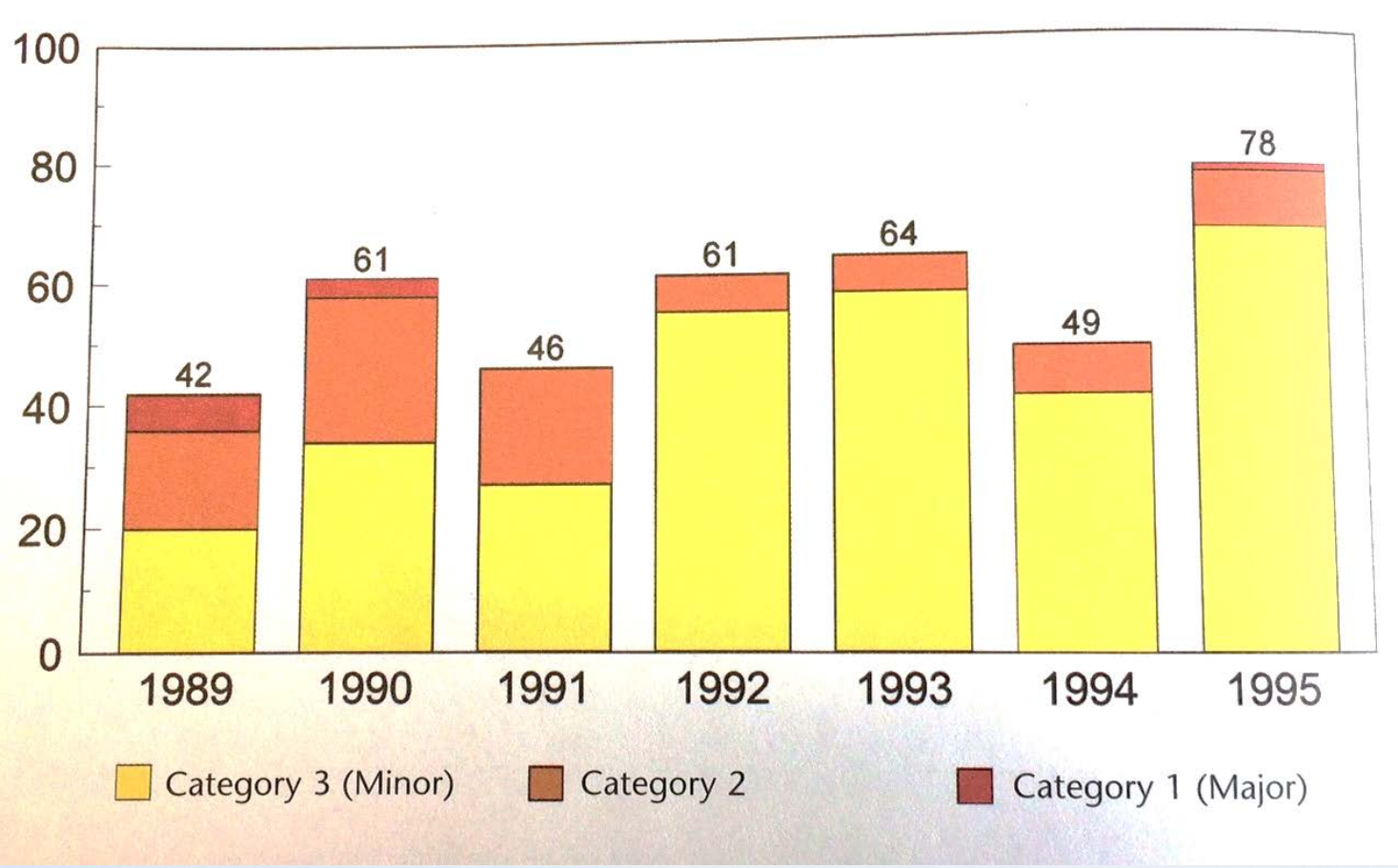
Decrease in polluting loads discharged to the estuary 1950-1990

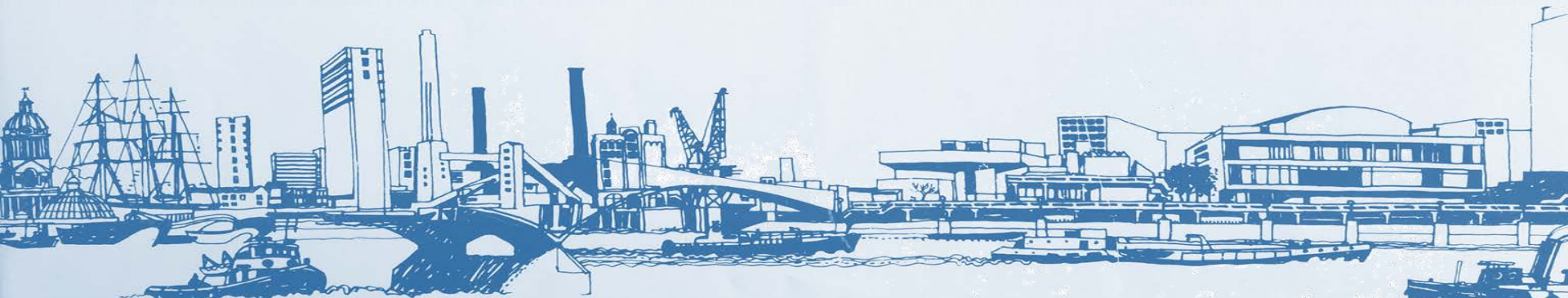


Mechanical aeration of the Thames in the 1950s, increasing oxygen content

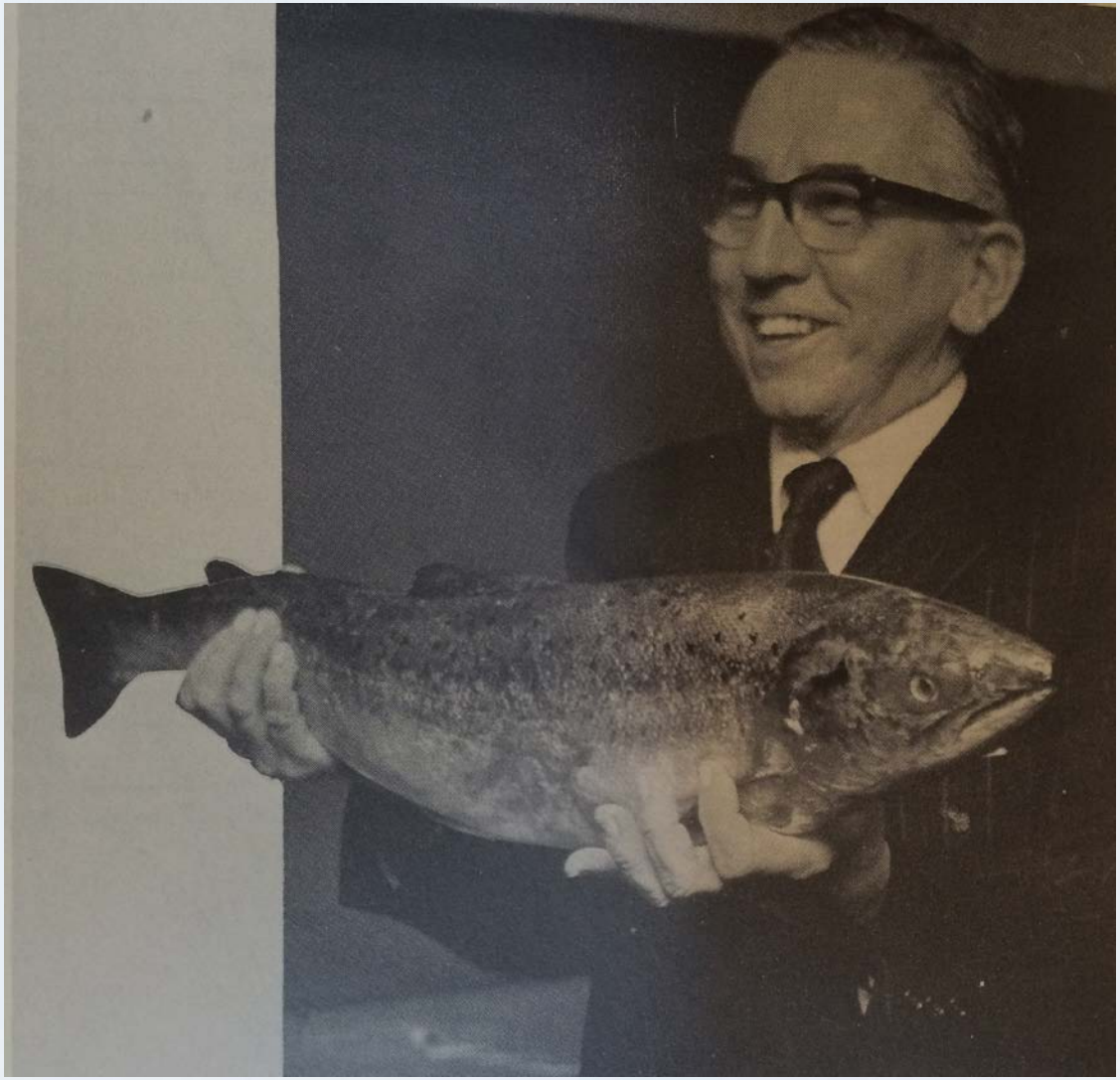
The Thames Bubbler

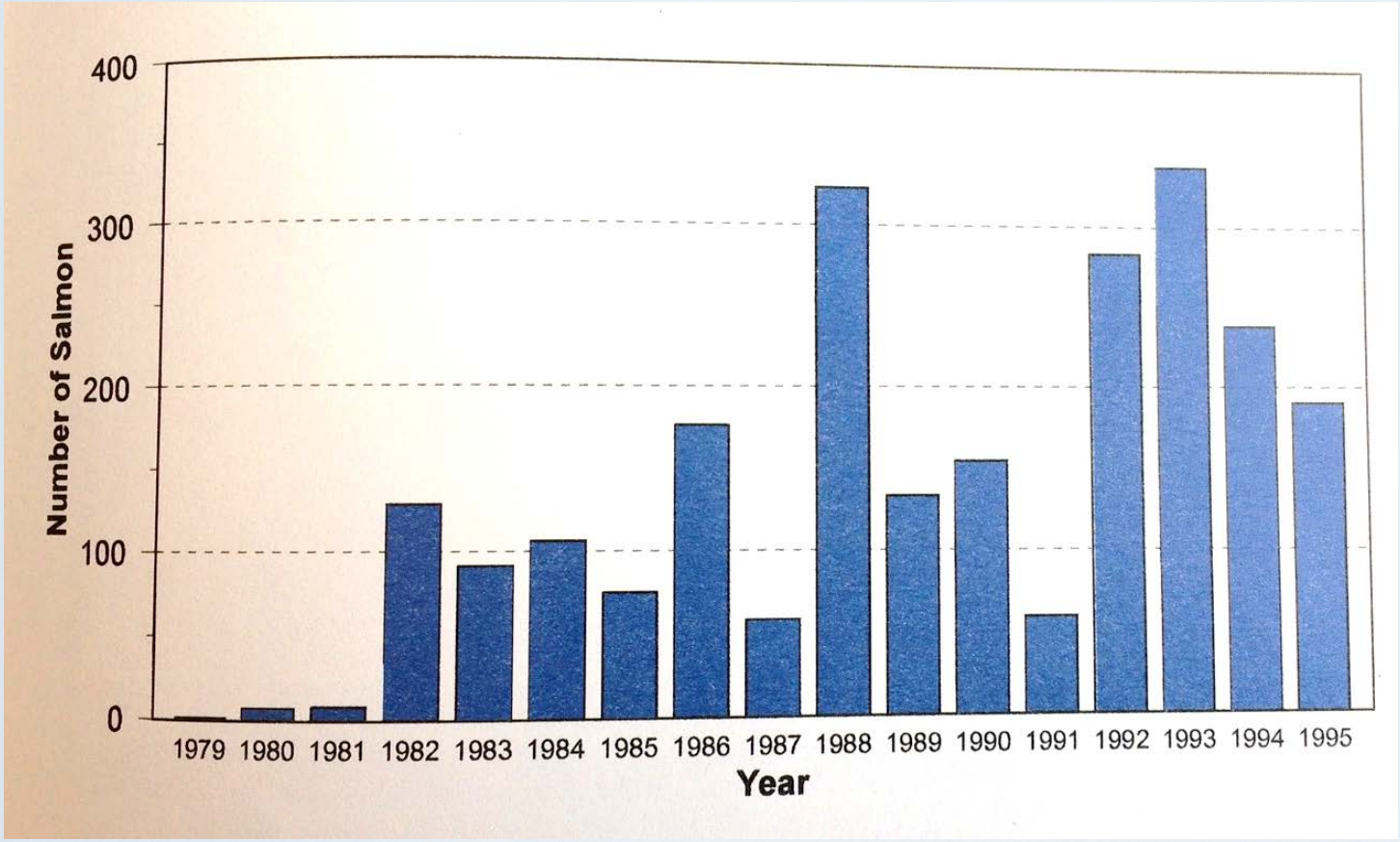
Thames Tideway pollution incidents to 1995



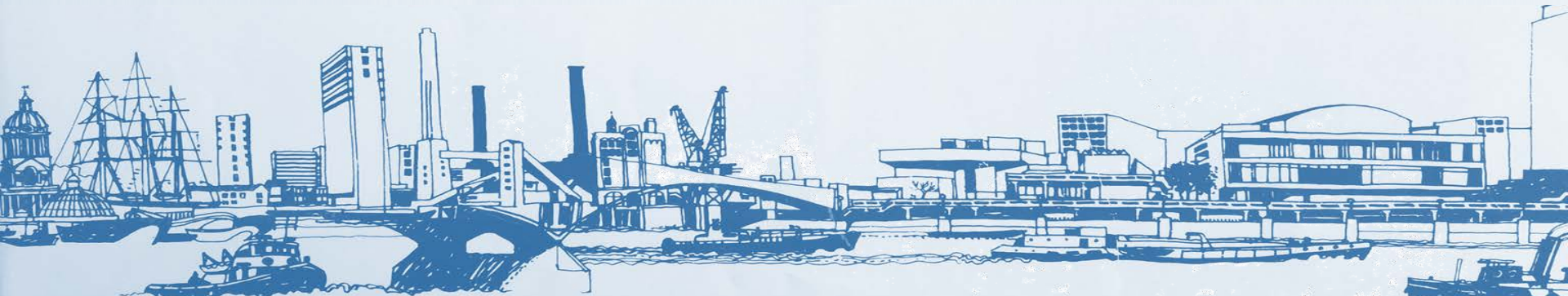


Peter Black, Chairman of Thames Water Authority, holding the first salmon taken live from the Thames since 1833, in November 1974





Confirmed Annual Returns of salmon in the Thames Estuary, 1979-1995



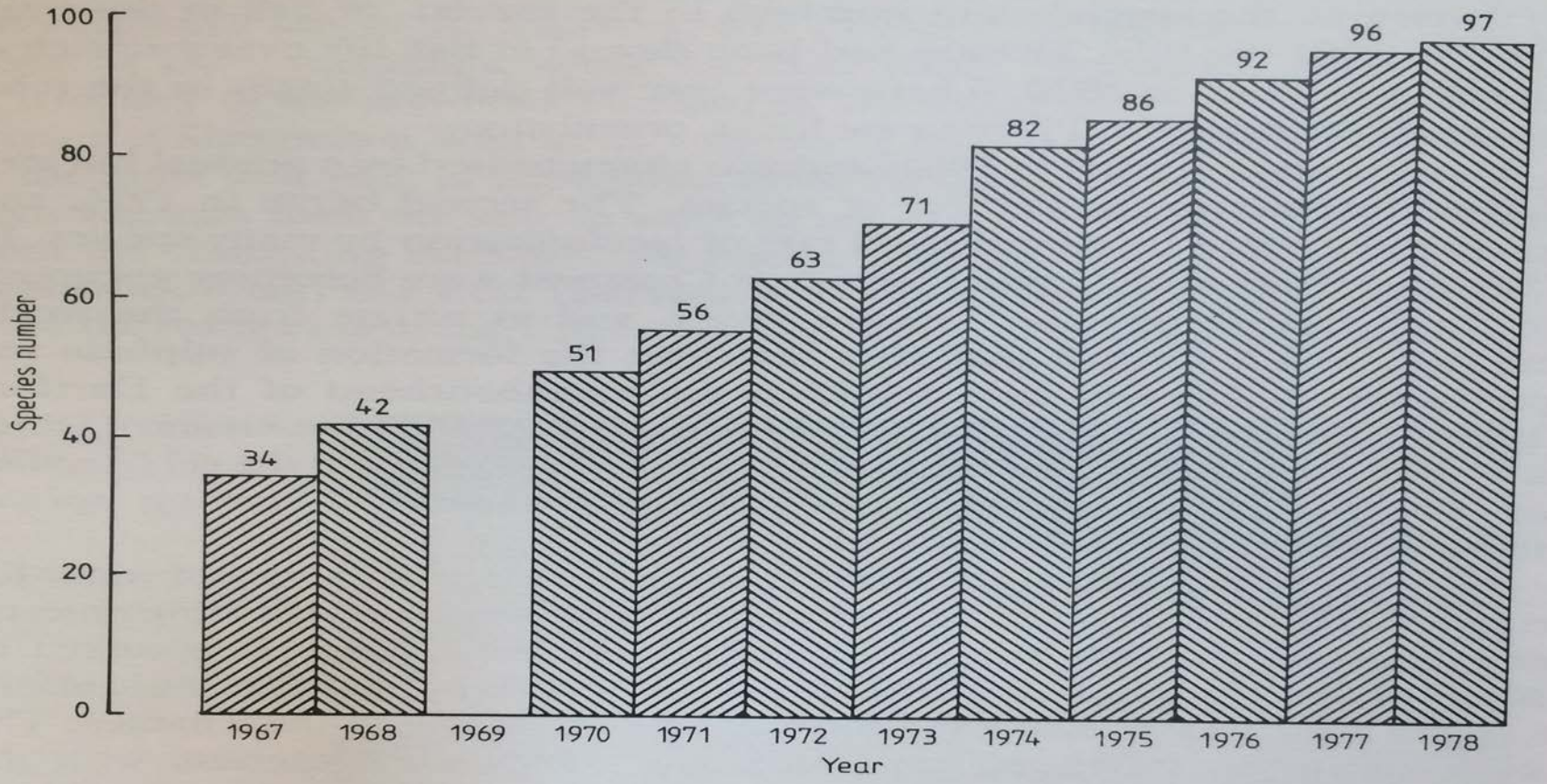


Figure 83. Cumulative number of species of fish recorded in the Thames from Fulham to Gravesend.

Biological indicator species in the Thames Estuary: shellfish and invertebrates

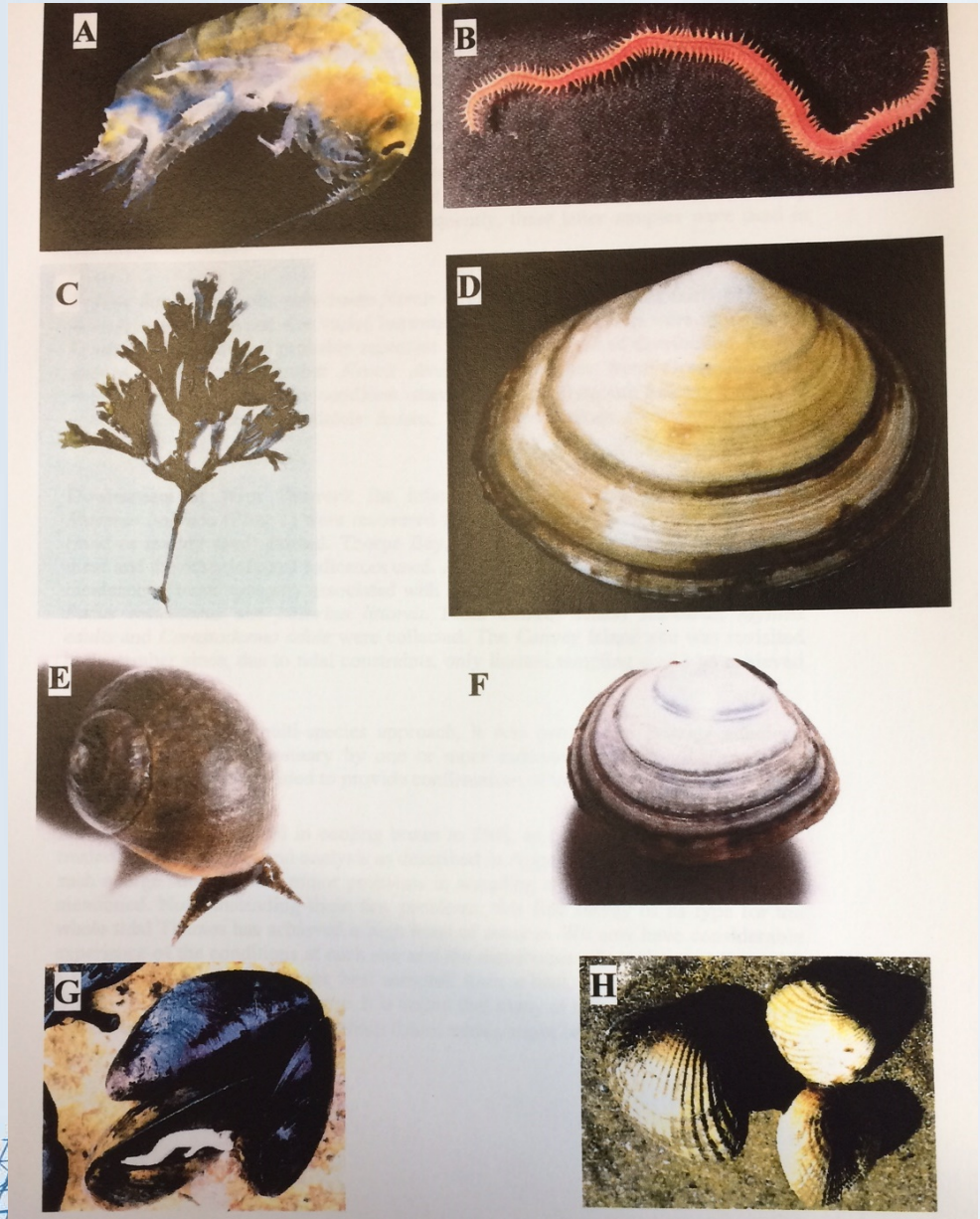
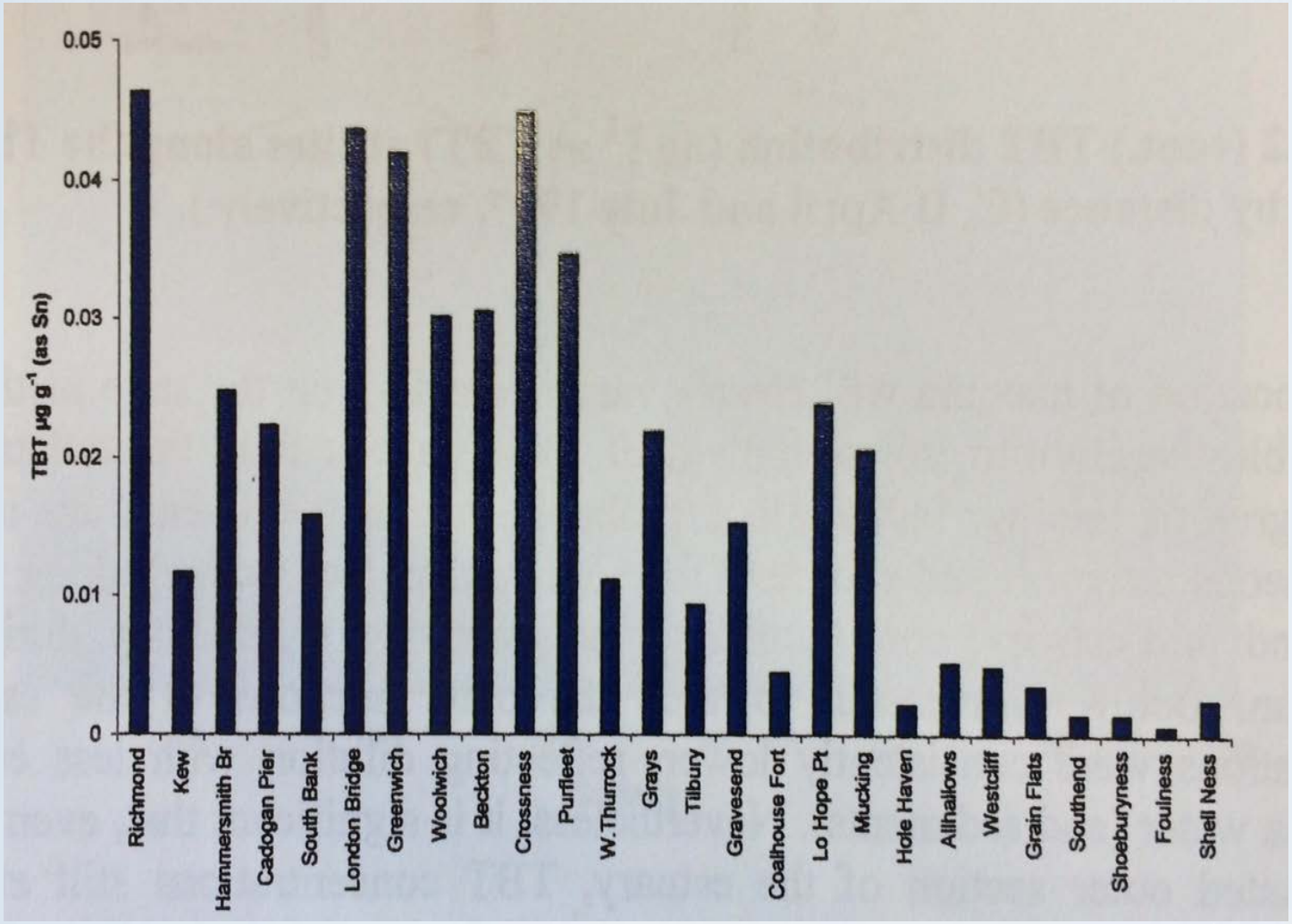
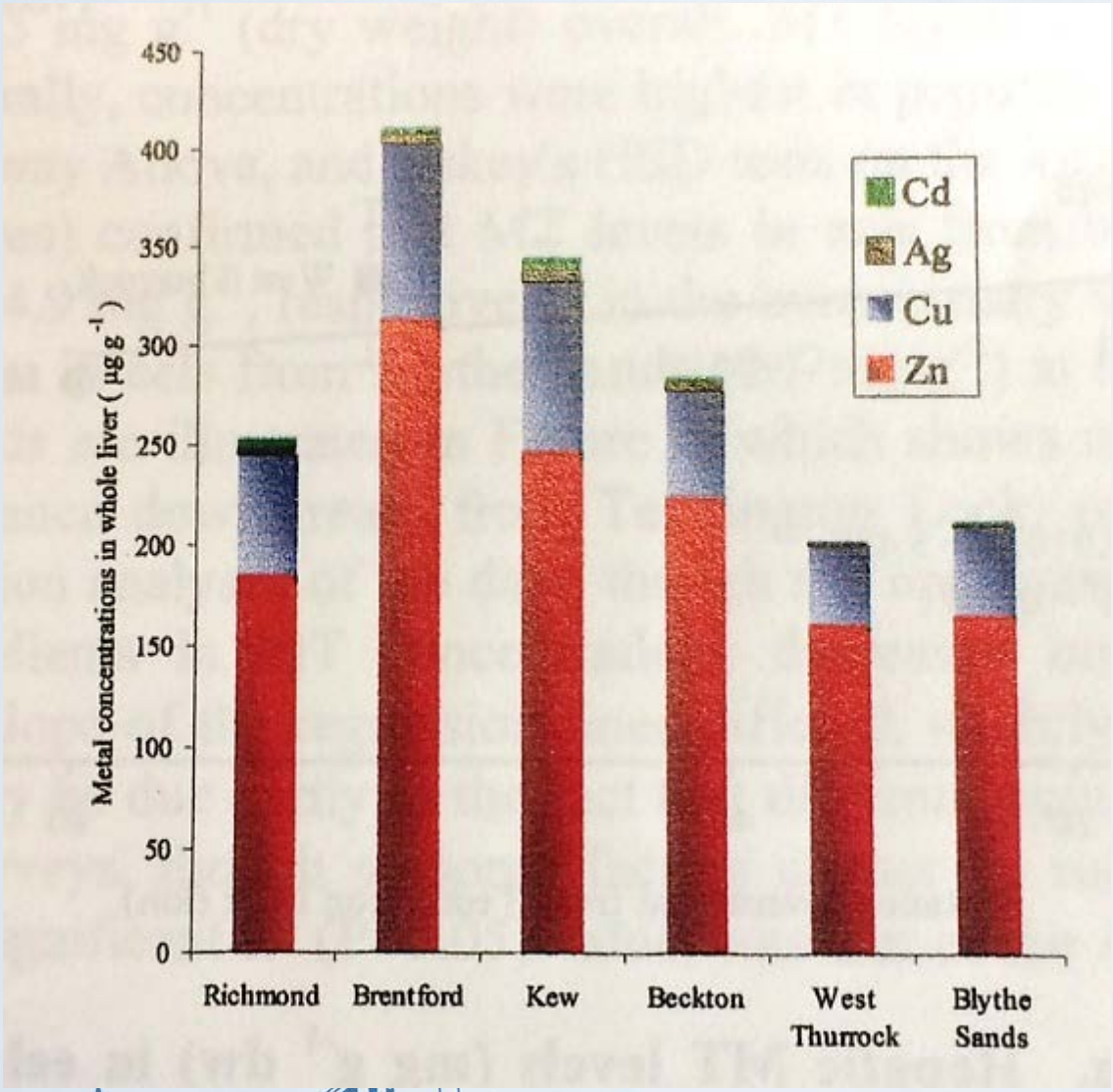


Plate 1. Biological indicator species, Thames Estuary. Gammarid shrimp, *Gammarus zaddachi* (A); Ragworm, *Nereis diversicolor* (B); Brown seaweed, *Fucus vesiculosus* (C); Clam, *Scrobicularia plana* (D); Winkle, *Littorina littorea* (E); Clam, *Macoma balthica* (F); Mussel, *Mytilus edulis* (G); Cockle, *Cerastoderma edule* (H).



Sediment TBT (tin) profile in the Thames Estuary below Teddington, July 1997



Mean concentrations of metals in livers of eel populations from the Thames estuary (August 1998)

Seal populations in the estuary appear to be recovering, according to ZSL research

Final TMMSS Report.pdf | ZSL #inthethames

Carolyn

sites.zsl.org/inthethames/

Home - BBC News | SOLO - Search Oxfor | Keele login area | Mercia Centre for Inn | Create word clouds – | Grant - UK, Poll Book | The Conversation | Search Electoral Roll

ZSL LET'S WORK FOR WILDLIFE

Thames Marine Mammal Survey

#inthethames

This year's sightings

Public sightings

ZSL's surveys

Seal tracking

Gallery

In the Thames

Spotted a marine mammal?

The Thames Estuary is home to harbour seals, grey seals, harbour porpoises and sometimes even dolphins and whales! ZSL has been collecting public sightings of these marine mammals since 2004 and they are frequently sighted all the way up to Richmond.

These sightings form a crucial part of our understanding of the biodiversity in the Thames and help us conserve these charismatic top predators.

If you are lucky enough to see a marine mammal, please follow our code of conduct and report your sighting below.

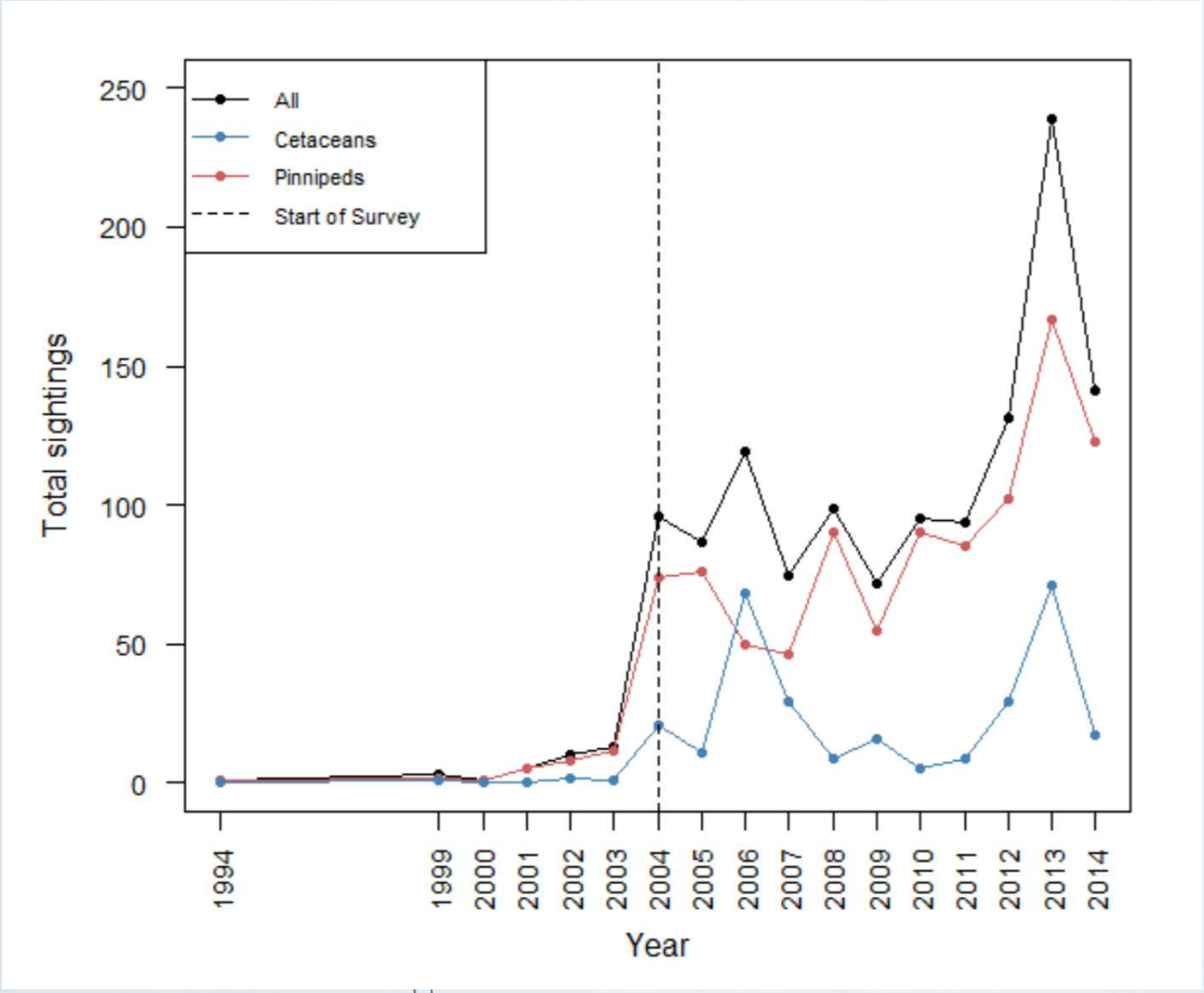
Sightings reported this year

93 harbour seals	159 grey seals	25 harbour porpoises	8 dolphins

Number of unknown seals 19

Report a sighting

Marine Mammal Code of Conduct



Marine Mammal sightings in the Thames, to 2014, ZSL

Harbour Seal populations increased again 2014, 2015 and 2016, but Grey Seals fluctuating

APPENDIX 3

Fish Species of the Thames Estuary

The fish species listed below have been caught in the tidal River Thames between Fulham and Tilbury since 1964. The list is not necessarily indicative of the species that are currently present.

Freshwater	Euryhaline	Marine	Marine (cont.)
Barbel	Bass	Anchovy	Mullet, Golden
Bleak	Eel	Angler Fish	Mullet, Red
Bream	Flounder	Blue Mouth	Mullet, Thick-Lipped
Bullhead	Lampern	Brill	Mullet, Thin-Lipped
Carp	Lamprey	Butterfish	Norway Bullhead
Carp, Crucian	Salmon	Catfish, Channel	Pilchard
Chub	Shad, Allis	Cod	Pipefish, Broad-Nosed
Dace	Shad, Twaite	Conger Eel	Pipefish, Great
Goldfish	Smelt	Dab	Pipefish, Nilsson's
Grayling	Stickleback, 3-sp	Dab, Long Rough	Pipefish, Snake
Gudgeon	Stickleback, 10-sp	Dory	Pipefish, Straight-Nosed
Loach	Trout	Dragonet	Pipefish, Worm
Minnow	Trout, Rainbow	Eckstrom Topknot	Plaice
Perch		Garfish	Pogge
Pike		Goby, Black	Pollack
Roach		Goby, Common	Poor-cod
Rudd		Goby, Leopard	Pouting
Ruffe		Goby, Painted	Ray, Sting
Tench		Goby, Rock	Rockling, 5-bearded
Hybrid -		Goby, Sand	Rockling, 4-bearded
Roach*Bream		Goby, Sand (*P. lozanoi*)	Rockling, 3-bearded
		Goby, Transparent	Rockling, Northern
		Goldsinny	Rockling, shore
		Gurnard, Grey	Sand Eel
		Gurnard, Red	Sand Eel, Greater
		Gurnard, Streaked	Sand Eel, Raitt's
		Gurnard, Tub	Sand-smelt
		Haddock	Scad
		Hake	Scaldfish
		Herring	Sea Bream, Black
		Ling	Sea Horse (*H. hippocampus*)
		Lumpsucker	Sea Horse (*H. ramulosus*)
		Mackerel	Sea Scorpion, Long Spine

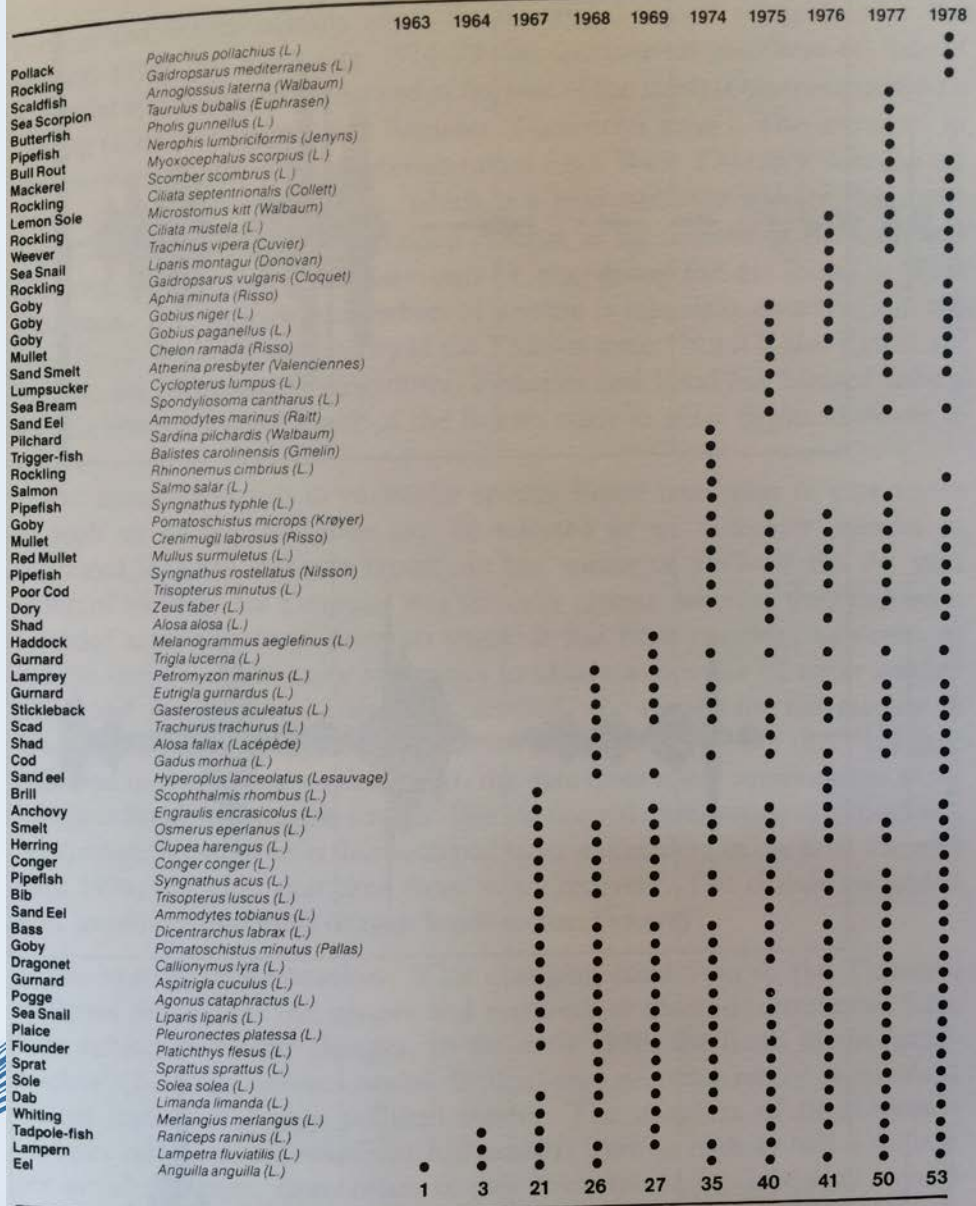


Figure 84. Marine and euryhaline fish recorded at the CEGB intake at West Thurrock power station, 1963–78.