

Prime Minister ^{for Mack} (2)

To note

MCS 24/2

PRIME MINISTER

1. I think that you will wish to know that I have today approved the purchase of a new research ship by the Natural Environment Research Council (NERC) to replace the RRS Shackleton which is now almost at the end of its useful life.
2. The science for which the NERC research vessels are required is high in the Council's priorities (a note is enclosed) and has the endorsement of the Advisory Board for the Research Councils.
3. This Department and the Department of Industry have worked closely with the NERC throughout the tendering process, keeping the Treasury informed. Only two tenders merited serious consideration - one from the Norwegian shipyard Mjelle and Karlsen (which specialises in research vessels) and one from British shipbuilders Ltd (Appledore). The costs, and discounted net present values (calculated following Treasury methods), are given in the table following; it should be noted that the two ship designs are not identical, as I explain below:

	<u>Norway</u>	<u>BS</u>
	<u>£m</u>	<u>£m</u>
Cash cost	6.1 (a)	7.256
Cash: Net present value (NPV)	4.84	5.84
Credit: NPV	3.96-4.08 (a)	4.47
Credit: total expenditure	8.505-8.768	9.4

Note (a) the figure of £6.1m results from taking the present exchange rate of £1 = NOK 11.2. A change, for example, to £1 = NOK 10.94 would put the cash price up to £6.2m. There is also uncertainty over the interest rate between 8% and 8½%. The NPV range spans these uncertainties.

4. NERC have thoroughly analysed the two designs, with the help of their consultants Burness, Corlett and Partners. This analysis, and the desirability of buying on credit (as indicated by the NPV figures) led them to prefer the British vessel on these main grounds, which are seen as fully justifying the additional cost:

- (i) scientific and technical. The BS ship is larger, with a broader beam. Although having somewhat higher running costs it would have substantial advantages including 50% greater scientific hold space, 50% more laboratory space, 25% larger cruising range and endurance, and greater stability allowing perhaps 10-15 more useful days at sea annually;

- (ii) industrial. BS (Appledore) would gain in experience in building a research ship, in line with our public purchasing policy. NERC intends to replace the ageing Discovery in about 5 years. Appledore's experience should show in a lower tender for that vessel. NERC would benefit from operating sister ships.

NERC's consultants endorse the view that the Appledore ship is the best buy for the Council's research even at the higher cost. The Norwegian yard would possibly be able to deliver the ship about 4 months earlier than the 2 years offered by BS, but NERC do not consider this to be significant.

5. On this basis I decided to approve the credit purchase of the British vessel, as within our delegated Treasury authority. I know that Norman Lamont is content with this outcome. It will be for the NERC to announce their decision in due course.

6. I am sending copies of this minute to Geoffrey Howe and Patrick Jenkin.

KJ

Department of Education and Science

24 February 1982

NERC RESEARCH SHIPS

1. The only dedicated civil research vessels based in the UK and suitable for distant water operations are the four owned by NERC; the Shackleton is the oldest of these (27 years). Since 1976, there has been an increase in the demand from universities and from NERC institutes for time on these vessels for long range deep water work. These vessels are at sea for about 260 days a year, which is the maximum possible bearing in mind the time required for port servicing, annual refits etc.

2. The science for which these vessels are used can be summarised as follows:

i. The solid Earth beneath the deep ocean and its fringes is, as a result of the theory of plate tectonics, the new frontier of geology and geophysics. An understanding of the continental margins, of mantle heterogeneity, of crust geochemistry, of active plate margins will be amongst the most fascinating scientific topics of the next quarter century.

ii. Mineral explorations have so far concentrated on the continental shelf with great emphasis on hydrocarbons and NERC is deeply involved in this. The intensive examination of minerals in the deep oceans has only just begun but already the great potential is clear. Much challenging research of great economic importance remains to be done.

iii. Ocean circulation at all depths and the mixing of layers, with their profound interaction with the climate, will yield only to combined attack by highly instrumented satellites (for surface characterisation) and ships (for below surface work and for establishing 'ground truths').

iv. The marine biology of the deep oceans is a scientifically most active field. Biological exploration of the ocean depths has only just started, with almost all the prizes still to come.

Research areas (iii) and (iv) in combination will hold the key as to whether there is a CO₂ problem, and how vital elements such as sulphur are cycled in the world system.

3. NERC is the main provider of research vessel facilities for UK university and polytechnic use. Some 20 departments depend on these services to sustain their basic research and the supply of qualified marine manpower through postgraduate training.