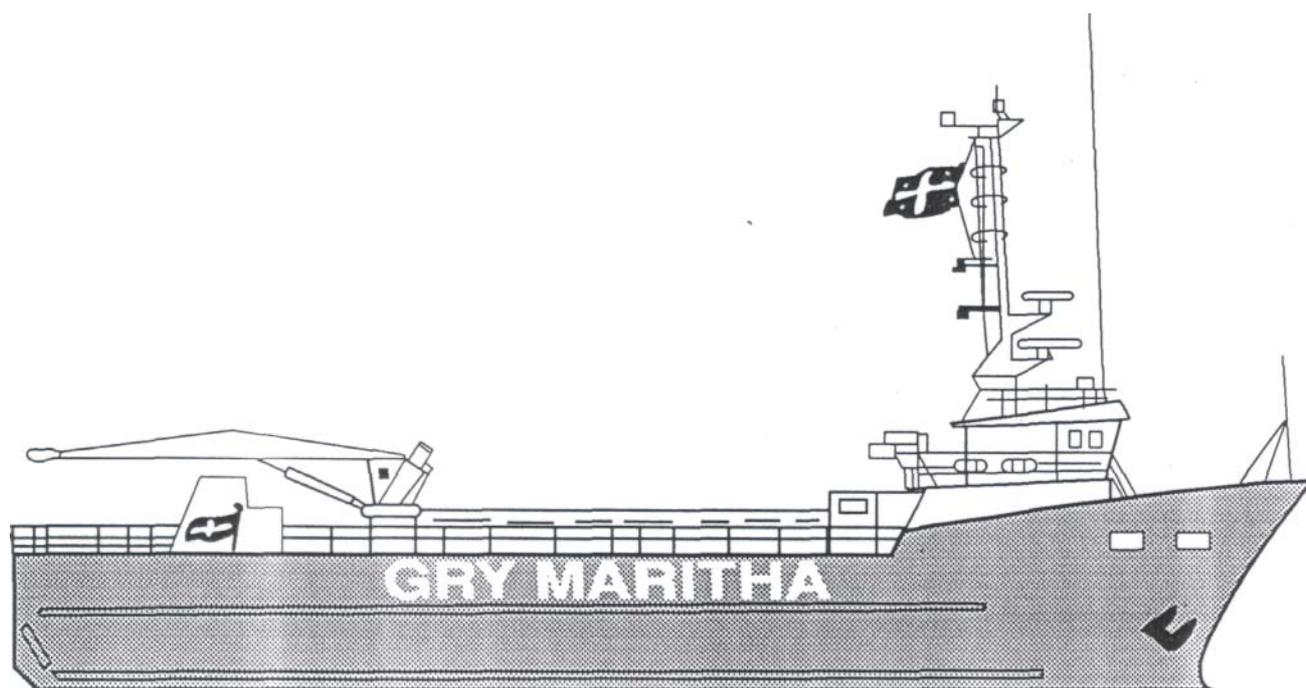




*Isles of Scilly Steamship Company Ltd.*



**TECNECON**

**GRY MARITHA  
CRITICAL APPRAISAL**

April 1991

## INTRODUCTION

This report has been prepared by TecneEcon for the Isles of Scilly Steamship Co Ltd (ISSCo, the Company) and offers a critical appraisal of the suitability of the general cargo ship, Gry Maritha, for the operation of the Company's main line cargo service between Penzance and St Mary's. A brief description of the vessel is given as Annex A.

Gry Maritha was purchased by ISSCo in 1989 following recommendations that the Company's cargo and passenger services to the Isles of Scilly should be separated, and that the cargo/passenger ferry Scillonian III which was providing a combined year round service should be laid up in the winter. The Company acted on these recommendations after considering independent studies of the future development prospects of the Company and the principal requirements of a vessel suitable for a year round cargo only service, and after testing the financial viability of such an operation over two winter seasons through the charter hire of a small coaster.

## COMMENTARY

### PHYSICAL

#### SUITABILITY Main

##### Dimensions

In our original assessment we made two observations as to the size of vessel required:

the vessel must be big enough to carry the largest cargo which its operators were likely to require it to lift; and

the vessel's dimensions must conform to the requirements of the particular port and sea conditions of the trading route.

While we indicated that sufficient capacity would be required for a cargo of up to about 200 tonnes per voyage, it was also our view that in this case considerations of seaworthiness and safety should outweigh any constraints imposed by cargo volumes. This meant that in order to deal year round with the sea and weather conditions of the seaway between Penzance and the Scilly Isles the Company would need to acquire a larger vessel than was required on purely cargo capacity grounds. The approximate dimensions of such a vessel were provided as a guideline, as shown in Table 1.

The acknowledged drawback of a vessel of these exact dimensions would be its inability to berth at the only available warehouse facility at Penzance. The breadth was relevant, however, in terms of hatch sizes, weather deck capacity and hold capacity, particularly considering the unusual and odd shaped cargoes sometimes carried in the Scillies trade, such as motor cars, agricultural machinery, roof trusses, timber and so on.

The principal dimensions of Gry Maritha are also given in Table 1. While these do not conform exactly to those suggested, the Company has succeeded in acquiring a vessel of a design which satisfies all criteria in terms of cargo carrying ability.

Table 1 MAIN PHYSICAL DIMENSIONS

Dimension	Guideline	Gry Maritha
Length	approximately 50 metres	37.6 metres
Breadth	approximately 9.25m for 50m loa	9.82 metres
Depth	approximately 4.5m for 50m loa	6.85 metres
Draught	approximately 4.0m for 50m loa	3.63 metres
Deadweight	550-700 dwt	528 tonnes
Cargo Capacity	not less than 640m <sup>3</sup>	1,060m <sup>3</sup>

### Cargo Capacity

Our guideline was for a vessel able to accommodate a cargo of at least 200 tonnes with an estimated total cubic of 640m<sup>3</sup>, giving rise to a requirement for 300m<sup>2</sup> of deck area in the cargo compartments. Such a cargo would typically compose 30 tonnes of breakbulk general cargo, 142 tonnes of laden containers, 12 vehicles, boats or other items of machinery, of which six are stowed on deck with some other miscellaneous deck cargo. In addition we indicated the requirement for approximately 200m<sup>3</sup> of clear area in the hold below the square of the hatch for containers and any large or oddly shaped items.

On a deadweight of 528 tonnes, Gry Maritha has a total hold capacity of 1060m<sup>3</sup>, making more than adequate provision for all aspects of the anticipated maximum cargo.

### Flammable Cargo Provision

In keeping with the practice in Scillonian III, Gry Maritha provides 25 tonnes of bunker capacity for deliveries of diesel gas oil for St Mary's customers. A dedicated fuel discharge system has been installed, capable of pumping ashore at approximately 6,000 litres per hour. If required by the Electricity Board on the islands a further 30 tonnes of tank capacity can be made available at short notice for diesel oil.

With regard to the carriage of other petroleum products, the practice in Scillonian III was to transport petrol in drums on deck and heating oil in portable tanks which were lifted on and off for loading and discharging when required, otherwise being kept permanently on board. We considered that future operations would be better served by transferring all petroleum products to dedicated tanks which, for reasons of health, safety and handling efficiency, should be fitted with independent pumping systems.

This has been done in Gry Maritha to the extent that diesel oil and light heating oil carried in a separate tank can be pumped ashore in bulk, while petrol is carried in 1,250 litre tanks, stowed on deck, and discharged by means of the ship's crane. There is also ample space on deck adjacent to the hatch coamings for storage of supplementary inflammable liquid tanks. These measures have been well received by the Health and Safety Executive and have made an appreciable difference to the service which the vessel can provide.

### Cargo Compartments

Consideration of the broad mix of cargo types carried by ISSCo lead us to conclude that:

wide hatches were essential. These should be powered, of the MacGregor type or similar to facilitate faster turn round times and efficient use of the crew. Hatch covers should be flush stowing and capable of bearing containers or other deck cargo;

a tweendeck vessel was preferable, but the height in the wings should be at least 2.65m, so as to be capable of taking a Ford transit van or equivalent. The lower hold need not be deep; and

weatherdeck deck capacity should allow for the stowage of up to six vehicles.

Gry Maritha displays all of these features. Hatch covers measure 12.6m by 4.7m and are strong enough to accommodate lightweight cargo. Space beneath the hatches is well in excess of the 200m<sup>2</sup> specification and capacity in the tweendeck has been sufficient to easily accommodate the 10 and 20 foot ISO reefer containers installed to serve the increasing loads of frozen foods and chilled goods including the islands' flower exports, and meet the increasingly stringent rules for the carriage of such goods. Height in the lower hold is restricted, though in view of the overall capacity of the tweendeck this is not a significant constraint. The upper deck aft is cleared for a further 60 tonnes of deck cargo.

### Classification and Survey

Gry Maritha was built in 1981 to Class 1A of Norwegian Ship Control and to a standard suitable for operation in soft ice conditions. Prior to purchase by ISSCo the vessel had been restored to Full Class by the previous owner, and therefore meets all age and classification criteria laid down in our original specification.

## OPERATIONAL

### PERFORMANCE Service Speed and

#### Reliability

We indicated a normal service speed requirement of 10 knots, with a capability of up to 12 knots to assist schedule keeping in poor weather. Gry Maritha operates on approximately 11 knots in most conditions, giving a round voyage steaming time of less than five hours.

It was perhaps unfortunate that the initial period of service coincided with the extreme bad weather in the winter of 1989/90 which caused a three day delay in one week's sailing, while a gearbox failure caused by a fouled propeller also gave rise to a missed sailing. Other than this there have been few problems with the vessel's reliability.

### Seakeeping

In its first 18 months of service Gry Maritha has proved in practice to be sufficiently seaworthy to cope safely with all but the most exceptional sea and weather conditions on the route between St Mary's and Penzance. Design features such as the high freeboard, skeg and flared bow significantly enhance the vessel's seakeeping abilities and compensate for the vessels relatively short overall length.

While we indicated that a ship with accommodation aft might be preferable, the forward accommodation block has the advantage of providing protection to weatherdeck cargo.

### Propulsion Machinery

From the point of view of manpower economy, we considered bridge control and certification for operation with unmanned engine spaces to be an essential requirement of a vessel plying this trade. Gry Maritha fulfils these requirements and is in addition certificated for an unmanned engine room during manoeuvring.

The two Caterpillar main engines drive through twin disc reversing gearboxes supplied by a subsidiary of Caterpillar, and have a number of important advantages. Not least of these is the location of a main Caterpillar agent at St Austell, and the fact that the engines were installed brand new only three years ago. The indicated running time between major engine overhauls is 10,000 hours. This means that the main engine overhauls should be necessary at only ten year intervals. The reversing gearbox arrangement has the added advantage of increasing manoeuvrability and eliminates the need for use of tugs or pusher boats in port.

### Cargo Handling

From observations made during the summer of 1990 we are satisfied that cargo handling in the vessel is carried out efficiently, well within the port turn round times available at the two service terminals, and to the considerable financial advantage of the Company. This is by virtue of the fact that all load, discharge and berthing operations are carried out by the ship's crew of four, and assistance from dockworkers has been reduced to a minimum.

The ship's pallet hoist system is remote controlled and plays a very large part in the overall labour economy of the vessel in that only two men, one on board, one on the quayside, are required to shift the bulk of cargo using fork lift trucks.

The availability of a small deck crane, with a lifting capacity of about six tonnes, was also considered to be desirable in terms of handling containers, fuel tanks and other deck cargo. Many small cargo ships are not ordinarily equipped with this type of gear and ISSCo has been fortunate in finding a ship on the secondhand market so well geared for the islands' cargo traffic.

### Passenger Accommodation

The vessel is now certificated to carry up to 12 passengers in the event of a suspension of air services. To date the largest passenger count has been seven persons on one trip from St Mary's to the mainland. The accommodation is suitable for a maximum of three overnight passengers.

### FINANCIAL RESULTS

Table 2 summarises the Company's shipping profit and loss accounts for the last four financial years. To allow a true comparison the figures have been adjusted to take account of inflation over the period. Since the introduction of the cargo only service, in the first two years with Jenka on charter and in 1989/90 with Gry Maritha in full ownership, the results of the Company's shipping operations have shown a healthy improvement. In the last two years in particular the total improvement on the account as compared with the last loss making year of 1986/87 has been in the region of £100,000.

The financial impact of the cargo only operation is very much in line with expectations, and has been further assisted by significant reductions in quay wage costs. This is an area where further economies are anticipated; in the first five months of Gry Maritha's operations, savings totalling £13,000 were realised in the cost of dock labour at Penzance, while the period up to September 1990 showed further savings in the region of £60,000.

Table FINANCIAL RESULTS OF MAIN LINE SHIPPING SECTION <sup>(a)</sup>  
(£000)

Years Ending 31 March	1987	1988	1989	1990	
Income	Scillonian III all 1,969	Scillonian III 1,887	Scillonian III laid up in 1,990	Scillonian III laid up in 1,913	Change in Real Terms 1987-1990 -56
Direct Costs	1,510	1,363	1,348	1,277	-233
Advertising	119	137	167	149	+30
Indirect Costs and other Selling Expenses	381	385	398	424	+43
Total Costs	2,010	1,885	1,913	1,850	-160
Profit (Loss) on Shipping	(41)	2	77	63	104

(a) Indexed to 1989/90 values

Source : Isles of Scilly Steamship  
Company

## CONCLUSIONS

We are satisfied that Gry Maritha adequately and economically fulfils the various physical and operational requirements of ISSCo's main line cargo service between Penzance and the Stilly Isles. Moreover, we have formed the opinion that the Company has been fortunate in finding a vessel at an acceptable price on the secondhand market which is so well suited to the needs of the islands' cargo traffic.

While Gry Maritha is a shorter, deeper vessel than the type we had envisaged, our experience of the vessel's handling and reports from the ship's crew confirm its stability and manoeuvrability, and its ability to cope safely with the sea and weather conditions experienced in the crossing between Penzance and St Mary's.

The physical layout of the vessel and the modifications introduced by the Company accommodate the very broad mix of cargoes encountered in this trade. The new arrangements for the carriage of fuels and other flammable liquids are in particular to be welcomed. The pallet system provides both speed and labour economy combined with reduced cargo damage. The system is assisted by the uncongested hold space which makes for easier access by the forklift trucks and avoids the need for high density stowage of cargo. The need for dock labour in port is also reduced to a minimum and this is a key area of cost saving to the overall operation.

The ultimate test of the vessel's success will be its impact on the Company accounts. The cargo only service was introduced to reduce the losses incurred in the winter, while allowing the Company to continue its efforts to maximise its passenger income during the summer months. This goal is being achieved. The change brought about in the Company's financial position since 1987 indicates that the cargo only service is achieving results of the order which we projected in our 1986 study. Expenditure during this period contained an element of non recurring start up costs which are reflected in the small dip in profits on the shipping account in 1989/90. The economy of the vessel in terms of labour and quay cost savings has yet to reach its full potential.

ANNEX A

OUTLINE DESCRIPTION OF GRY MARITHA

## OUTLINE DESCRIPTION OF GRY MARITHA

Gry Maritha is a mini pallet carrier and was built in Norway in 1981. The vessel has two Caterpillar main engines driving twin propellers through reversing gear boxes to give a normal service speed of about 11 knots, and is certificated for operation with unmanned machinery spaces which allows it to operate with a crew of four. Cargo handling equipment includes a side shifter pallet hoist on the port side which serves both the tween deck and lower hold cargo spaces, and a six tonne deck mounted hydraulic crane with an outreach of 14 metres which is mounted on the starboard side and which can plumb the whole of the weather deck and work from the quay when the vessel is lying port side to. The vessel is also equipped with three forklift trucks for cargo handling in the hold spaces, and can accommodate up to 60 tonnes of cargo on the weather deck.

Although the vessel is well suited to its new trade, since acquiring Gry Maritha ISSCo has made a number of modifications to the vessel to better meet the particular requirements of the island community which it serves. These include:

the installation of two 20 tonne reefer containers one of which is maintained at -25C for frozen cargo, the other being maintained at 1C for chilled goods. Two 10 tonne reefer containers have also been provided to back up and augment this capacity for off island goods;

part of the vessel's bunker capacity is used to carry- marine diesel fuel for the islands, and a discharge system with pumps, meter and fuel hose reel has been installed;

kerosene heating oil can be carried in a 6,000 litre tank which has been installed in the lower hold, linked to its own pumping, metering and discharge system;

portable 1,250 litre tanks have been provided for the on deck carriage of petrol and derv road fuels;

one of the main ballast tanks has been cleaned and given a special epoxy coating which, together with special filling and discharge arrangements, enables the vessel to carry up to 70 tonnes of fresh water to the islands on each voyage;

doubling plates have been fitted to the vessel's keel to provide additional protection in the event that the vessel has to take the ground at St Mary's; Gry Maritha is fitted with facilities for cooling the auxiliary machinery via one of the ballast tanks when the vessel is dried out;

accommodation and life saving appliances have been provided allowing the vessel to carry up to 12 passengers in the event of a suspension of air services to the islands during the winter months; and

the navigation aids and fire detection systems have been updated and improved.

Consideration is also being given to the possibility of fitting a stern ramp so that wheeled traffic can be loaded directly to the main deck without lifting.

## PRINCIPAL PARTICULARS

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Built	Kolvereid, Norway 1981
Builders	Moen Slip Og Mek Verksted, Kolvereid, Norway
Length	37.61 metres
Breadth	9.81 metres
Moulded Depth	6.85 metres
Draught (full load)	3.63 metres
Draught (light ship)	2.9 metres approximately
Gross Tonnage Net	590 tons (new rules)
Tonnage Deadweight	177 tons
Tonnage Main	528 tonnes
Engines	Two Caterpillar 3406B marine diesels developing 350 horsepower each at 1800 rpm driving outward turning propellers through twin disc reversing gear boxes.
Auxiliary Engines	Port, Volvo turbo'charged TMD7TC diesel driving Stamford 80 kVA alternator and hydraulic pump for bow thrust.  Starboard, Volvo MD70 CK diesel driving Stamford 70 kVA alternator.
Steering Gear	Telford, dual hydraulic system to twin rudders with manual backup.

## NAVIGATION AND ELECTRONIC EQUIPMENT

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Sperry Giro	:	Compass
Decca Log	:	Recording speed and distance
Econometer	:	Fuel consumption monitor
Neco Auto Pilot	:	with gyro and magnetic compass interface
Shipmate Navigator		
Sailor T2031/R2002	:	MF radio with 2182 watchkeeper
Sailor RT 143	:	VHF radio with 'cellcall'
Sailor RT 144C	:	VHP radio for company's private channel working
3 ICOM	:	ICM2 mobile VHF radio telephones
Furuno FR2010 Main Radar PPI	:	Semi automatic radar assisted plotting able to plot up to 10 targets with computer plotting 0.25 nm to 75 nm. Also daylight viewing
JRC JMA 302	:	Secondary radar
Navtex	:	Automatic navigational text receiver
Fuso 403	:	Echo sounder
Weather Fax	:	for receipt of detailed weather and sea state forecasts
Vodophone Mobile Telephone		
Vodophone Mobile Fax	:	for advance transmission of cargo manifests and other documents
Tandon Computer		for detailed tidal predictions and stores control

# Isles of Scilly Steamship Company Ltd.

Incorporating ISLES OF SCILLY SKYBUS LTD. and WESTWARD AIRWAYS (LANDS END) LTD.

B.C. WARD  
Chairman

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(0720) 22357/22358  
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Our Ref:

Your Ref:

3 May 1991

Dear Shareholder,

Our Company, born out of need over seventy years ago is still such an important part of the structure of island life. Over the years we have had to respond to changing circumstances and make difficult but necessary decisions.

In the 1970s we had to face up to the new and increasing competition from the helicopter service for our passenger trade. We faced up to the need to sell the Queen of the Isles. We had to decide on a replacement for Scillonian II. Subsequently we had to face up to the problems created by the bankruptcy of the Ryton Marine Shipbuilding Company. In the years 1975-1977 we had to decide how to finance the building and purchase of Scillonian III.

during the 1980s we looked at the various initiatives and proposals from the Graham "Moss Report. Decisions were made on the laying up of Scillonian III in the winter time, the commencement of Skybus air service and the purchase and operation of a separate sea freight service. Whenever possible we have sought advice from qualified experts and then tempered that with our own local knowledge and experience.

The acquisition of Gry Maritha, the introduction of the Penzance Warehouse and the palletised cargo handling system has been the biggest change in our methods of operation since our conversion of Scillonian II to containerised handling in March 1969. This new service has involved a great deal of hard work and initiative by management, freight staff and the ship's crew.

In January of this year we engaged Messrs. Tecnecon, an independent firm of transport consultants, to carry out a critical appraisal of our decision to introduce Gry Maritha and details of the new methods of operation.

A copy of their report is enclosed and I am sure you will find it makes interesting reading.

Yours sincerely,



B.C. WARD - CHAIRMAN

P.S. At the time of writing the building of the new off-island launch is on schedule. I am sure that you will approve the commitment of your directors in maintaining the inter-island launch service.

