

International Commission on Whaling

(Constituted under the International Whaling Convention
signed at Washington on 2nd December, 1946)

TWELFTH REPORT OF THE COMMISSION

(covering the twelfth fiscal year 1st June, 1960 to
31st May, 1961)

*(As approved by the Commission at its Thirteenth Meeting in London, June 1961,
and authorised to be printed)*

LONDON

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CONTENTS

	<i>Page</i>
List of Members of the Commission 	2
Report 	3
Appendix I—List of those attending the Twelfth Meeting of the Commission in London 	10
Appendix II—Agenda for the Twelfth Meeting 	11
Appendix III—Chairman's Report of the Twelfth Meeting (held in London), including the Amendments to the Schedule of the International Whaling Convention, 1946, made at that meeting	14
Appendix IV—Report of the <i>Ad Hoc</i> Scientific Committee, as circulated prior to the Thirteenth Meeting in London, 1961 	22
Appendix V—Report of the Working Party on Humane and Expedi- tious Methods of Killing Whales 	32
Appendix VI—Income and Expenditure Account for the twelfth fiscal year (1st June, 1960 to 31st May, 1961) 	36
Appendix VII—Infractions reported in respect of the 1960/61 season (Antarctic) and the 1960 season (outside the Antarctic) 	37
Appendix VIII—List of Reports received by the Commission during the twelfth year, ending 31st May, 1961 	38
Appendix IX—Table showing the Oil Production, etc., 1950/51—1960/61	40

LIST OF MEMBERS OF THE COMMISSION

<i>Argentina</i>	...	...	...	...	(Not yet appointed)
<i>Australia</i>	...	...	...	...	Mr. J. V. MORONEY
<i>Brazil</i>	...	...	...	...	(Not yet appointed)
<i>Canada</i>	...	...	...	...	Mr. G. R. CLARK (Chairman)
<i>Denmark</i>	...	...	...	...	Mr. J. NØRGAARD
<i>France</i>	...	...	...	...	Mr. P. GRIBELIN
<i>Iceland</i>	...	...	...	...	His Excellency Dr. K. GUDMONDSSON
<i>Japan...</i>	...	...	...	...	Mr. I. FUJITA
<i>Mexico</i>	...	...	...	...	(Not yet appointed)
<i>New Zealand</i>	...	...	...	...	Mr. G. L. O'HALLORAN
<i>Norway</i>	...	...	...	...	Mr. G. SJAASTAD
<i>Panama</i>	...	...	...	...	Mr. R. R. ALEMAN
<i>South Africa...</i>	...	...	...	...	Mr. C. G. DU PLESSIS
<i>Sweden</i>	...	...	...	...	Mr. P. B. KOLLBERG
<i>U.S.S.R.</i>	...	...	...	...	Capt. A. N. SOLYANIK
<i>United Kingdom</i>	...	...	...	...	Mr. B. C. ENGHOLM (Vice-Chairman)
<i>U.S.A.</i>	...	...	...	...	Dr. REMINGTON KELLOGG

R. S. WIMPENNY,
Secretary.

*Office of the Commission,
Whitehall Place,
London S.W.1.*

International Whaling Commission

1. Meetings This Report covers the Twelfth Meeting of the Commission, held in London from 20th-24th June, 1960, under the Chairmanship of Mr. R. G. R. Wall, and also the meeting of the Commission's *Ad Hoc* Scientific Committee, held in London from 13th to 16th June, 1961, under the Chairmanship of Dr. A. Mackintosh, to assess the results of the 1960/61 (Antarctic) and 1960 (outside Antarctic) whaling seasons.

Reports of these meetings are attached as Appendices III and IV. As in the Eleventh Annual Report, the proceedings are referred to here only where they require relating to general and continuing developments during the year.

2. Membership The Governments of Norway and the Netherlands were informed of the Commission's Resolution at the Twelfth Meeting urging them to rejoin the Convention (Section 10 of Chairman's Report at Appendix III). Notification of the adherence of the Norwegian Government was received by the Depository Government on 25th September, 1960 and the Convention entered into force with respect to Norway on 23rd September, 1960. The Norwegian Government pointed out that their continued adherence to the Convention was dependent upon three conditions: (1) that the Government of the Netherlands adhered to the Convention, (2) that the Government of the Union of Soviet Socialist Republics maintained their earlier pledge to limit their national catch to a 20 per cent share of the total Antarctic pelagic baleen catch permitted under the Convention, (3) that agreement was reached within a reasonable time on the division of the remaining 80 per cent between Japan, Norway, the Netherlands and the United Kingdom.

The Government of the Netherlands informed the Commission that their adherence to the Convention was conditional on prior agreement being reached on the future level of the total catch limit when the Convention ceiling was re-imposed (Section 3 below) and on the establishment of national quotas for the countries engaged in Antarctic pelagic whaling. In the meantime the Government of the Netherlands confirmed their intention to conform to the provisions of the Schedule excepting those relating to the duration of the catching season for whales other than blue and humpbacked. They expressed their willingness to participate, if invited to do so, in any renewed discussions on quotas and international inspection and to contribute to the success of the special scientific investigation that the Commission had called for (Section 13 below).

The Commission was advised just before the Twelfth Meeting of the adherence of Argentina to the Convention as from 18th May, 1960.

3. Catch Limitation The Commission decided at the Twelfth Meeting to suspend the blue whale unit catch limit on baleen whales taken by factory ships in the Antarctic during the 1960/61 and 1961/62 seasons (Section 9 of Chairman's Report at Appendix III). Paragraph 8(a) of the Schedule was amended accordingly. Objections to the amendment were subsequently lodged by the Governments of Japan and the Union of Soviet Socialist Republics and have not been withdrawn. So far as these two countries are concerned, therefore, the limit of the permitted Antarctic pelagic baleen whale catch remains at 15,000 blue whale units, as in the 1959/60 season.

The terms of the resolution adopted at the Twelfth Meeting requesting the Antarctic pelagic whaling countries, despite the suspension of the Convention catch limit, to limit the size of their national catch quotas to a level no greater than each imposed for the 1959/60 season, were brought to the attention of the

countries concerned. In reply the Commission was informed that the Governments of Norway and the Netherlands had imposed limits of 5,800 and 1,200 blue whale units respectively, in both cases the same as in 1959/60. The Government of the Union of Soviet Socialist Republics set a limit of 3,000 units for their expeditions, which have been increased from two to three since the 1959/60 season. The Government of Japan imposed a limit of 5,980 units for seven expeditions which compared with a limit of approximately 5,100 units for six expeditions in 1959/60, while the limit set by the United Kingdom Government was 1,800 units for two expeditions, compared with 2,500 units for three expeditions in the previous season.

Only the Japanese expeditions reached the limit set and the combined catch of the five countries in the 1960/61 season (as recorded below), amounted to 16,433 blue whale units compared with 15,512 units in 1959/60.

4. The 1960/61 Catch In the 1960/61 season there were 21 pelagic expeditions operating in the Antarctic compared with 20 in 1959/60. They were the same eight Norwegian and one Dutch expeditions. The former British factory ship "Balaena" of 15,303 tons was sold after the 1959/60 season to Japan and renamed "Kyokuyo Maru No. 3", thus bringing the total number of Japanese expeditions in 1960/61 to seven and reducing the United Kingdom number to two. The new Soviet ship "Juri Dolgorukij" of 25,377 tons with 14 catchers had her first season and increased the number of Soviet expeditions to three.

The total number of catchers operating with the 21 expeditions was 252 compared with 220 in 1959/60. The distribution of the catchers was as follows:

	<i>No. of Catchers</i>	
	<i>1960/61</i>	<i>1959/60</i>
Norway	81	70
United Kingdom	22	31
Netherlands	14	13
Japan	83	69
U.S.S.R.	52	37
	<hr/> 252	<hr/> 220

The following table shows the number of blue whale units taken by the pelagic expeditions and their distribution in natural numbers for the different species:

<i>Member countries</i>	<i>Blue Whales</i>	<i>Fin Whales</i>	<i>1960/61 Humpback Whales</i>	<i>Sei Whales</i>	<i>Blue Whale Units</i>
Norway	138	9,825	80	701	5,199
United Kingdom	107	2,361	115	736	1,456
Japan	1,144	8,912	211	1,773	5,980
U.S.S.R.	301	4,373	302	1,070	2,787
	<hr/> 1,690	<hr/> 25,471	<hr/> 708	<hr/> 4,280	<hr/> 15,422
Netherlands	50	1,903	10	30	1,011
All countries	<hr/> 1,740	<hr/> 27,374	<hr/> 718	<hr/> 4,310	<hr/> 16,433

	<i>Blue Whales</i>	<i>Fin Whales</i>	<i>1959/60 Humpback Whales</i>	<i>Sei Whales</i>	<i>Blue Whale Units</i>
All Countries	1,230	26,415	1,338	3,234	15,512

(Additionally, the Antarctic pelagic expeditions caught a total of 4,681 sperm whales in 1960/61 compared with 4,138 in 1959/60.)

The total Antarctic pelagic baleen catch increased by 921 blue whale units or nearly 6 per cent compared with that in 1959/60. Taking the natural numbers, the catch of blue whales was over 41 per cent higher and that of sei whales over 33 per cent higher than in the previous season; the increase in the fin whale catch, at 3.6 per cent, was much less marked, while that of humpbacks was nearly 47 per cent less.

The opening of the Antarctic baleen season under the Convention was 28th December, but the Netherlands expedition commenced catching on 28th November. All Japanese expeditions had ceased whaling by 25th March and those of the Soviet Union by 1st April. The Norwegian, Netherlands and United Kingdom expeditions continued whaling until the season ended on 7th April. The catching period for all the expeditions taken together averaged 96 days, compared with 99 days in 1959/60.

The total output of oil for the pelagic season amounted to 2,122,709 barrels at 6 barrels to the ton, inclusive of sperm oil. This compared with 2,050,892 barrels in 1959/60.

The average catch per catcher's day's work by pelagic expeditions in the 1960/61 Antarctic season dropped to 0.68 blue whale units from 0.73 units in 1959/60. In the five previous seasons, 1954/55-1958/59, the average had been between 0.90 and 0.99 units. The average size of blue whales taken was 74.01 feet compared with 75.9 feet the year before; the average size of fin whales was 66.79 feet (66.6 feet in 1959/60) and of humpbacks 41.38 feet (40.9 feet in 1959/60). The percentage of immature blue whales was 71.71, compared with 50.33 in the previous season and of fin whales 27.73 against 27.64 in 1959/60.

There were some marked variations in the geographical distribution of the Antarctic pelagic baleen catch compared with the previous season. The blue whale units caught in Areas II, III and VI increased:

		<i>Area II</i>	<i>Area III</i>	<i>Area IV</i>
1960/61		2,929	7,885	2,222
1959/60		2,587	4,981	366
Increase		342	2,904	1,856

The blue whale units caught in Areas I, IV and V decreased:

		<i>Area I</i>	<i>Area IV</i>	<i>Area V</i>
1959/60		322	3,765	3,401
1960/61		241	1,211	1,887
Decrease		81	2,554	1,514

Whaling was undertaken by all three land stations at South Georgia when a total of 16 catchers were employed compared with 21 in 1959/60. The baleen catch at 830 blue whale units was 62 units higher than on the previous season; the sperm was also higher, 134 against 89. The total oil production amounted to 109,796 barrels compared with 97,546 barrels in 1959/60.

Outside the Antarctic 50 land stations and 3 floating factories were in operation in 1960 (excluding one Chilean land station from which no information was available for this season). A total of 24,313 whales were caught compared with 25,599 in 1959. Total oil production, baleen and sperm oil, amounted to 724,707 barrels compared with 761,988 barrels in 1959.

5. Antarctic Whaling Season The Commission made no change at the Twelfth Meeting in the opening date for the taking of fin and sei whales, which therefore remained at 28th December. In view of the continued decline in the Antarctic stocks of blue whales, however, it was decided to reduce the season for taking

this species by two weeks; the opening date was altered from 1st February to 14th February and paragraph 7(a) of the Schedule was amended accordingly. The Commission also agreed that further protection was necessary for humpback whales and decided that humpback whaling in Area IV by pelagic expeditions should be banned for the 1961 to 1963 seasons inclusive and that during this period the catching season in Area V should be reduced from four to three days commencing 20th January. This entailed amendment of paragraphs 6(2) and 6(3) of the Schedule. The four days' open season for humpback remained in force within Areas I, III and VI. No change was made in the closing date, 7th April, for the baleen season.

Objections to the Schedule amendments relating to the blue whale and humpback seasons and the embargo on humpback whaling in Area IV were subsequently lodged, however, by the Japanese Government, and in consequence objections were similarly made by the Governments of Norway, the United Kingdom and the Union of Soviet Socialist Republics. The objections were not withdrawn and the amendments to paragraphs 7(a), 6(2) and 6(3) of the Schedule were therefore ineffective so far as the 1960/61 season was concerned.

6. The State of the Antarctic Stocks

—Blue Whales

A higher total blue whale catch than for any of the five years preceding in the Antarctic pelagic whaling season 1960/61 was due to a large proportion

of "pigmy blue whales" taken by Japanese expeditions. Apart from the "pigmy blue whales", however, the catch continues its decline. Other lines of evidence also lead to the conclusion that the stocks are being given no chance to recuperate and that, if taking them should continue with the present effort, progressively lower catches will result. Bearing all these things in mind the *Ad Hoc* Scientific Committee of 1961 repeated their views of the previous year that this species needed total protection in the Antarctic for a period of two or three years after which the situation could be reviewed.

7. —Fin Whales

There was also a slightly higher total catch of fin whales for the Antarctic pelagic whaling season of 1960/61 than that which was taken in preceding years. Nevertheless the *Ad Hoc* Scientific Committee thought that a downward trend in abundance had been started and that this would go on unless some restriction was placed on exploitation. Failing this catches would begin a fall. Such a fall in catches could be deferred by increase in effort, but this would only steepen the trend and accelerate the process.

8. —Humpbacks

Dealing with the six separate groups, of southern humpback whales for the 1960/61 season, the *Ad Hoc* Scientific Committee thought that there was no evidence of a decline of Group I (South East Pacific) and made no recommendation. In Group II (Atlantic region), on the other hand it was thought best to maintain complete protection as the stocks there are seriously reduced due to long and severe exploitation. No new restrictions were suggested for Group III (West Indian Ocean) but it was thought important to stress that there should be no increase in the present rate of taking these whales. There had been a lower catch of Group IV (East Indian Ocean) humpbacks than in previous years and the evidence available suggested that the stock had been reduced to such a low level that perhaps only one or two hundred could be taken annually from the entire group (i.e. from West Australia and Antarctic Area IV). Any further increase in the catch would only result in a worse situation. The Group V (South West Pacific) stock yielded a catch at much the same level as in previous years, but the severe fall in the catch per unit effort on the Australian coast and evidence on catch composition led the *Ad Hoc* Scientific Committee to consider

that too much was being taken from this stock. It was thought that it might be found that this stock was now at a level to yield a sustained catch not exceeding one thousand. However, it must be emphasised that these views were extremely tentative and would be reviewed in the light of the population studies being made. Whaling in Antarctic Area VI (Central Pacific) is recent and there is some reason to suspect that the so called Group VI stock may really be a part of Group V. Marking may clear up this doubt.

9. —Sei Whales The *Ad Hoc* Scientific Committee noted that there had been an increase in the Antarctic catch of sei whales in the season 1960/61 but no information was available on the condition of the stock.

10. —Sperm Whales A progressive decline in the length of sperm whales taken in the Antarctic was noted by the *Ad Hoc* Scientific Committee. No evidence on the status of stocks of this species was available.

11. Marking A substantial examination of the theory and practice of whale marking took place at the Special *Ad Hoc* Scientific Committee meeting in Rome and again at the 1961 annual *Ad Hoc* Committee meeting in London. Of the three sorts of marking that were useful those aimed at elucidating (1) migrations and movements and (2) age and growth were thought more practicable on grounds of expense and technical feasibility than (3) which afforded estimations of mortality rates and population size. It was therefore decided that, for the time being, marking operations would be planned for the first two purposes. Mr. Brown (acting as convenor), Dr. Omura, Dr. Chittleborough and Dr. Arseniev were asked by the *Ad Hoc* Scientific Committee to keep the progress of marking plans under review and to make suggestions from time to time with regard to the co-ordination and planning of these operations.

Some three hundred whales (blue, fin, humpback, sei and sperm) were marked in the 1960/61 Antarctic season by Japanese and U.S.S.R. expeditions. Some 50 marks were recovered during the season and these included two fin whales which provided valuable information on the migration of this species, as they had been marked off the west coast of South America.

12. Antarctic Pelagic Whaling—Extra Convention Quota Discussions

Representatives of the Governments of Japan, the Netherlands, Norway and the United Kingdom had three meetings during the year in attempts to reach agreement on the division of 80 per cent of the permitted catch when the global limit is restored under the Convention. At the request of the countries concerned the Chairman of the Commission presided over the first two meetings, in London, February, 1961 and Vancouver, April, 1961, but was unable to do so when the discussions were resumed in London at the end of May, 1961. The Government of the Union of Soviet Socialist Republics, who had confirmed acceptance of a national quota of 20 per cent of the total permitted catch as agreed at an earlier meeting of the five Antarctic Pelagic Whaling countries in 1959, was invited to send an observer on all three occasions but was only able to do so in the case of the first London meeting.

The discussions culminated in certain proposals for the division of the 80 per cent which the delegates undertook to refer to their governments for urgent consideration. No decisions had, however, been reached by the time of the Commission's Thirteenth Meeting.

13. Scientific Appraisal of Antarctic Whale Stocks The following is the full text of the resolution adopted by the Commission at the Twelfth Meeting (see Section 8 of Appendix III):

"The Commission resolves that the *Ad Hoc* Scientific Committee undertake the following:—

- (i) Review the data available and make a statement on their deficiencies.
- (ii) Study the manipulative and analytical methods employed in whale research and propose ways of improvements and standardisation; or if such proposals would appear premature, to indicate, where possible, research work leading to developments of this kind.
- (iii) Study the data available on selected problems, making the fullest use of developed methods of population dynamics research, and seek to arrive at conclusions on these data.
- (iv) Review the methods at present in use for measurement and calibration of the efforts expended in capturing whales with a view to proposing ways in which these methods might be improved so as to provide more effective and reliable data and if necessary to propose details of a project of research in these matters.
- (v) Consider what specific collections and observations could usefully be made as a routine in whaling factories. For example, comprehensive collections of ear plugs for age determination and certain records of whales observed are desirable.

In order to assist in the scientific assessment of the condition of the whale stocks in the Antarctic the Commission requests the Chairman in consultation with the Vice-Chairman and the Chairman of the Scientific Committee to obtain the services of three scientists qualified in population dynamics or other appropriate science and drawn from countries not engaged in pelagic whaling in the Antarctic to examine in the light of the advice and data available to the Commission the scientific evidence and to the extent justified by this evidence report as a committee to the Commission within one year of their appointment on the condition of the Antarctic whale stocks, on the level of sustainable yield that can be supported by these stocks and on any conservation measure that would increase this sustainable yield. This special group of three scientists should be asked to work with the *Ad Hoc* Scientific Committee.

It is the intention of the Commission in setting up this special group of scientists that the Commission should, not later than 31st July, 1964, bring the Antarctic catch limit into line with the scientific findings, having regard to the provisions of paragraph 2 of Article V of the Convention."

The appointments by the Chairman of the Commission after consultation with the Vice-Chairman and Chairman of the Scientific Committee, of the three specially qualified scientists to undertake the independent investigation were completed in March, 1961. The three scientists are: Mr. S. J. Holt, Fisheries Biology Branch, Food and Agricultural Organisation; Dr. D. G. Chapman, University of Washington, Seattle, U.S.A. and Mr. K. R. Allen, Marine Department, New Zealand.

A meeting of the *Ad Hoc* Scientific Committee, in connection with their special mandate from the Commission, was held from 24th April to 6th May, 1961, at the headquarters of the Food and Agriculture Organisation in Rome. The three independent scientists attended the Committee's meeting at which were also present representatives from the Governments of Australia, Japan, New Zealand, Norway, the United Kingdom and the Union of Soviet Socialist Republics. There was also present a representative from the Government of the Netherlands who, although not now a member of the Commission, had been invited to partake in this work. The *Ad Hoc* Committee's report of this meeting and the first interim report of the Committee of three Scientists were submitted for consideration by the Commission at the Thirteenth Meeting.

It is expected that further meetings of the Committee will be held later in 1961 and early in 1962. The final reports of the special group of three scientists and of the *Ad Hoc* Scientific Committee are expected to be considered by the Commission at the Fourteenth Meeting in 1962.

14. Amendments of the Schedule The only amendments of the Schedule made by the Commission at the Twelfth Meeting were those relating to the suspension of the Antarctic pelagic catch ceiling and to the curtailment of blue and humpback whaling, referred to in Sections 3 and 5 above.

15. Humane Killing of Whales At the Twelfth Meeting the Commission considered the report of the Working Party set up as a result of the decision at the Eleventh Meeting, to study the question of the more humane and expeditious killing of whales. A copy of the Working Party's report is attached as Appendix V. The Commission accepted the Working Party's conclusions (Section 16 of the Chairman's report at Appendix III).

A meeting between British and Norwegian technical experts, including two members of the Commission's Working Party, on the possibilities of development of the electric harpoon was held in Norway in April, 1961. The report of the meeting was submitted for consideration at the Thirteenth Meeting of the Commission.

16. Finance The Commission apportioned £1,000 in the provisional budget for 1960/61 for the costs of meetings of the three scientists appointed to make an independent assessment of the whale stocks (Section 13 above). To offset this expenditure the annual contribution of Contracting Governments for the financial year was increased to £250 and the contribution towards the costs of whaling marking was suspended. The Commission decided to make a special review of its financial position and of the methods of levying contributions at the Thirteenth Meeting.

A copy of the audited accounts for 1960/61 is attached at Appendix VI. These were approved, subject to audit, by the Commission at the Thirteenth Meeting. The expenditure of the Commission for the year under review was £4,039 compared with £3,662 in 1959/60. The difference was mainly in the costs of the special scientific investigation, which expenditure had been partly offset by the suspension of the contribution towards the cost of whale marking.

17. Infractions Details of the infractions reported in respect of the 1960/61 season (Antarctic whaling) and 1960 season (outside the Antarctic) have been summarised in Appendix VII of this Report.

18. Permits to take Whales for Scientific Purposes No reports were received from Contracting Governments during the year under review of permits granted for the taking of whales under Article VIII of the Convention or of results of experiments in connection with permits issued in earlier years.

19. Meetings of Committees As indicated in Section 13 above, a special meeting of the *Ad Hoc* Scientific Committee, attended by the three independent scientists, was held in Rome in May, 1961. It was therefore decided to hold the annual meeting of the *Ad Hoc* Scientific Committee on the assessment of the previous season's whaling (formerly held in London in May or earlier) in the week immediately preceeding the Commission's Thirteenth Meeting, in order to economise in travelling time and expenditure.

20. Officers At the Twelfth Meeting the Commission accepted the resignation of the Chairman, Mr. R. G. R. Wall (United Kingdom) following his assignment to other duties in the United Kingdom Government. The Vice-Chairman, Mr. G. R. Clark (Canada) was elected Chairman and Mr. B. C. Engholm (United Kingdom) was elected Vice-Chairman in place of Mr. Clark.

The constitution of the Commission at the Twelfth Meeting is shown in Appendix I, that of the Technical, Scientific and Finance and Administration Committees in the Chairman's report (Appendix III) and of the *Ad Hoc* Scientific Committee in that Committee's report (Appendix IV).

APPENDIX I

List of Commissioners and Advisers attending the Twelfth Meeting in London, 1960

Chairman: R. G. R. Wall (United Kingdom)

<i>Commissioners or Deputies</i>			<i>Advisers</i>
ARGENTINA	S. N. Martinez		G. L. Kesteven
AUSTRALIA	J. V. Moroney		F. F. Anderson
			R. Crichton-Brown
BRAZIL	Not represented		
CANADA	G. R. Clark		W. M. Sprules
			J. E. G. Hardy
			W. A. Stewart
DENMARK	J. Hertoft		
FRANCE	P. Gribelin		P. Budker
ICELAND	E. Benedikz		
JAPAN	K. Nishimura		K. Nakazato
			H. Omura, K. Ando
			K. Mikanagi
			Y. Ooka
MEXICO	Not represented		
NEW ZEALAND ..	J. V. Scott		W. H. Dawbin
PANAMA	Not represented		
SOUTH AFRICA ..	W. A. Horrocks		
SWEDEN	P. B. Kollberg		J. af. Sillen
UNITED KINGDOM	B. C. Engholm		A. J. Aglen
			J. Graham
			H. F. Greenfield
			T. S. Leach
			N. A. Mackintosh
			R. M. Laws
			S. G. Brown
			H. K. Salvesen
			G. H. Elliott
			J. R. Young
			W. Sinclair
			D. Carmichael
U.S.A.	A. R. Kellogg		W. C. Herrington
			D. W. Rice
			A. S. Fugaro
U.S.S.R.	M. N. Sukhorutchenko		A. N. Solyanik
			V. A. Arseniev
			V. A. Tveryanovitch
			B. M. Morgun
			A. P. Movchan
			Mrs. I. Stepanova

Committee of International
Whaling Statistics E. Vangstein
Observers

THE NETHERLANDS	G. J. Lienesch
NORWAY	E. A. Ribbu
ITALY	U. Padovan
PORTUGAL	J. Lopes
F.A.O.	D. B. Finn
I.C.E.S.	A. J. Aglen (United Kingdom)
Secretariat	R. S. Wimpenny (Secretary), assisted by Miss J. M. Kirby, W. Robson, The Palantype Organisation.

APPENDIX II
CIRCULAR LETTER TO ALL COMMISSIONERS
AGENDA: TWELFTH MEETING, 1960

20th April, 1960

Sir,

I enclose herewith, in duplicate, a copy of the Agenda for the Twelfth Meeting of the Commission to be held on Monday, 20th June, 1960 and the necessary following days at No. 10 Carlton House Terrace, London, S.W.1. The opening meeting will begin at 10 a.m.

This Agenda has been drawn up in the light of comments which have been received on the draft provisional agenda circulated with my letter of 11th February, 1960.

Copies of the financial statements, referred to under Item 5, will be circulated early in June. They will include a provisional statement of income and expenditure for the year ending 31st May, 1960 and an estimate of income and expenditure for the year ending 31st May, 1961 (IWC 1/12/1A and 1B). These statements cannot be completed until the end of the current financial year. A copy of the audited accounts for the financial year ending 31st May, 1959 will also be circulated (IWC/12/1C).

Item 6 has been included at the request of the Commissioner for the U.S.A. who points out that the Commission may wish to review the status of extra-Convention discussions among the five Antarctic pelagic whaling countries as the possibility of some development in that connection prior to the Twelfth Meeting cannot be ruled out. Should the Commission desire as a result of such review to make any recommendations to Contracting Governments on this subject it appears to the U.S.A. Commissioner that it would be prevented from doing so by Rule XII of the Rules of Procedure unless an appropriate item were included on the Agenda.

With regard to Item 7, Commissioners will know that it was agreed at the Eleventh Meeting that the Chairman should appoint an *Ad Hoc* Scientific Sub-Committee and call it together early in May. It was hoped that by this date fuller statistics of the last season's catch would be available than has been the case in previous years when the Sub-Committee met earlier in the year. The Meeting is to be held on 10th-13th May. The Sub-Committee's report will be circulated as soon as possible after the end of the meeting (IWC/12/2).

The report on infractions against the Convention, Item 9, will be circulated at a later date when the information relating to the last season has been received from Contracting Governments (IWC/12/3).

Under Item 10 the Commission may wish to consider the additional information about the implementation of whaling legislation by Contracting Governments which has been received since that circulated at the Eleventh Meeting

(Document V). The information available will be circulated later (IWC/12/4). At the present time there are still a number of replies outstanding.

A draft of the Eleventh Annual Report, Item 14, will also follow later (IWC/12/5). This cannot be completed until the figures relating to the last year's catch are made available.

As regards Item 15, the Working Party on the Humane and Expeditious Killing of Whales, which was appointed by the Chairman and Secretary in accordance with the Commission's decision at the Eleventh Meeting, is due to hold a further meeting on 9th May. It is hoped that the Working Party will then be able to complete their report which will be circulated as soon after as possible (IWC/12/6).

On Item 16, Commissioners will see from the attached correspondence (IWC/12/7) that the United Kingdom has been unable to convene a meeting of the five Antarctic pelagic whaling countries, as envisaged at the Eleventh Meeting, for the purpose of working out the details of an observers' scheme.

The amendments to Paragraph 6 of the Schedule, under Item 17 (a) have been proposed by the Australian Government. Following consideration of the Australian Report on Humpback Whales, 1959, prepared for the International Whaling Commission by Dr. R. G. Chittleborough of the Commonwealth Scientific and Industrial Research Organisation and after taking into account all other information available to it regarding the present position and future prospects of the Australian Whaling Industry, the Australian Government considers that action to give further protection to humpback whale stocks in the Antarctic is imperative.

No other proposals for amendment of the Schedule have been received from Contracting Governments. Items 17(b) and (c) have, however, been added to allow the Commission to consider any changes in the opening date and length of the Antarctic pelagic baleen whaling season and in the blue whale unit catch limit that might arise from the review of the previous season's catch statistics or the extra-Convention discussion on the regulation of Antarctic pelagic whaling.

Item 18 has been included as the U.S.S.R. may wish to raise the matter. In reply to my circular letter of 14th July, 1959 conveying the interpretation of paragraph 9 of the Schedule as suggested at the Commission's Eleventh Meeting, Mr. Ishkov indicated that while the definition of the terms "meat" and "local consumption" were acceptable to his Government he felt that the matter could be usefully discussed at the Twelfth Meeting.

A copy of the Agenda and this covering letter, which should be read with and as part of the Agenda, is being sent to each Contracting Government and further copies may be obtained on application.

In the meantime I should be glad to be informed *as soon as possible* of the names of all those who will be present at the Twelfth Meeting on behalf of your Government.

I am, Sir,

Your obedient Servant,

R. S. WIMPENNY

Secretary to the Commission

AGENDA FOR THE TWELFTH ANNUAL MEETING AS APPROVED AT THE OPENING SESSION ON 20th JUNE, 1960 AT 10
CARLTON HOUSE TERRACE, LONDON, S.W.1.

1. Address of Welcome.
2. Arrangements for the Meeting.
3. Adoption of Agenda.
4. Appointments to Committees.

5. Finance and Administration (Papers IWC/12/1A, IWC/12/1B and IWC/12/1C—to be circulated).
6. Review of Extra-Convention Discussions on Regulation of Antarctic Pelagic Whaling.
7. Report of the *Ad Hoc* Scientific Committee (See Para. 25 of Chairman's Report of the Eleventh Meeting. The Report will be circulated as Paper IWC/12/2).
8. Review of the Previous Season's catches.
9. Infractions (Paper IWC/12/3—Infractions Report—to be circulated).
10. Implementing Legislation.
(See Para. 19 of Chairman's Report of the Eleventh Meeting—Summary of the replies received to the Secretary's letter of 21st September, 1959 will be circulated as Paper IWC/12/4).
11. Report by the Technical Committee.
12. Report by the Scientific Committee.
13. Report by the Finance and Administration Committee.
14. Eleventh Annual Report.
(A draft will be circulated as Paper IWC/12/5).
15. Humane Killing of Whales.
(See Para. 17 of Chairman's Report of the Eleventh Meeting. The report of the Working Party will be circulated as Paper IWC/12/6).
16. The Observer Scheme.
(See Para. 15 of the Chairman's Report of the Eleventh Meeting and Paper IWC/12/7 attached).
17. Amendments to the Schedule.
 - (a) Proposed amendment to Para. 6.
 - (i) that a new sub-para (4) to Para. 6 of the Schedule be included to read as follows:
"It is forbidden to kill or attempt to kill humpback whales in the waters south of 40° South Latitude between 70° East Longitude and 130° East Longitude for a period of five years" *or alternatively*
 - (ii) that the following words be added to the existing Para. 6(3)
"Provided however that for a period of five years, it is forbidden to use a whale catcher attached to a factory ship for the purpose of killing or attempting to kill humpback whales in any waters south of 40° South Latitude between 70° East Longitude and 170° West Longitude, that is, those waters known as Antarctic Areas IV and V, except on two consecutive days in any one year, to be determined by the International Whaling Commission" *or alternatively*
 - (iii) that the following words be added to existing Para. 6(3)
"Provided however that for a period of five years, it is forbidden to use a whale catcher attached to a factory ship for the purpose of killing or attempting to kill humpback whales in the waters south of 40° South Latitude between 70° East Longitude and 130° East Longitude, except on two consecutive days in any one year, to be determined by the International Whaling Commission."
 - (b) Opening dates and length of Antarctic pelagic baleen whaling season (Schedule: Para. 7(a)).
 - (c) Blue whale unit limit in Antarctic (Schedule: Paras. 8(a) and (c)).
18. Meat for Local Consumption: Interpretation of Paragraphs 9(a) and 9(b) of the Schedule.
19. Date and Place of the Next Meeting.
(Rule XVII of the Rules of Procedure of the Commission refers to meetings outside London).
20. Arrangements for Press Release.

21. Any Other Business.
22. Resignation of Chairman.

APPENDIX III

CHAIRMAN'S REPORT OF THE TWELFTH MEETING

1. Date and Place

The Twelfth Meeting of the Commission was held from 20th June to 24th June, 1960, at 10 Carlton House Terrace, London, under the chairmanship of Mr. R. G. R. Wall (United Kingdom).

2. Delegates and Observers

Commissioners of Contracting Governments, together with their experts and advisers, were present from Argentina, Australia, Canada, Denmark, France, Iceland, Japan, New Zealand, South Africa, Sweden, the Union of Soviet Socialist Republics, the United States of America and the United Kingdom. Brazil, Mexico and Panama were not represented. Observers were present from the Food and Agriculture Organisation of the United Nations, the International Council for the Exploration of the Sea, Italy, the Netherlands, Norway and Portugal.

3. Adherence to the Convention of Argentina

Argentina had acceded to the Convention on 18th May, 1960, and a special welcome was extended by the Commission to her representative, Senor S. N. Martinez.

4. Adoption of Agenda

The Commission adopted the Agenda previously circulated by the Secretary subject, at the request of the Chairman, to the addition of an item "Resignation of Chairman".

5. Address of Welcome

Mr. Gilmour Leburn, Parliamentary Under-Secretary of State for Scotland in the United Kingdom Government, addressed the opening session of the Commission. He drew attention to the present world-wide recognition of the growing need for the conservation of marine resources. Two of the world's leading whaling nations—the Netherlands and Norway—had withdrawn from the International Whaling Commission as a result of failure outside the Convention to rationalise the fishing efforts of the countries participating in Antarctic pelagic whaling. Nevertheless discussions on the harmonisation of claims were continuing outside the Commission and their success was earnestly hoped for.

6. Condition of the Stocks

The Scientific Committee reported to the Commission on the condition of the whale stocks in the light of the most recent information.

The state of the stocks in the Antarctic gave the Committee great cause for concern and they expressed their views as follows:

(a) *Blue Whales*. There was disturbing evidence that the stock of blue whales was still declining from the low level to which it had fallen over the years and that its condition had become more serious. There were not thought to be grounds for hoping that the stock was becoming stabilised or that exploitation would be sustained at the present low levels. The Committee therefore considered that total protection for several years in the first instance was the only satisfactory measure for the protection and regeneration of the Antarctic blue whale stock.

(b) *Fin Whales*. The Committee were unanimously of the view that the fin

whale stock was declining. The catch of fin whales had further increased and an increase in catch from a declining stock was much to be deprecated.

(c) *Humpback Whales*. The available evidence showed that the Group IV stock, inhabiting Antarctic Area IV (70° East-130° East) and the waters off Western Australia, was in a serious state; and if catching were to be continued at the level of the past few years the decline would continue to disastrous levels. The Committee considered that the wisest course of action to secure regeneration would be to suspend the exploitation of the Group IV stock for two or three years.

With regard to the Group V population inhabiting Antarctic Area V (130° East-170° West) and the waters off Eastern Australia, New Zealand and the South West Pacific Islands, it was thought undesirable for there to be any increase in the present level of taxation.

(d) *Sei Whales*. The Committee noted that there had been a much larger catch of sei whales in the Antarctic in 1959/60 and felt that it was desirable to obtain full data on the catch of this species each year since sei whales might become a more important element in the total Antarctic catch.

(e) *Blue Whale Unit Limit*. While not attempting to predict the effect of any specific reduction in the total catch limit, the Committee considered that a reduction was necessary and that anything less than about 2,500 units would have little beneficial effect.

As to sperm whales, evidence was noted of the progressive reduction of the average length of animals taken in the Antarctic. While making no specific recommendation, the Committee felt that the fullest biological data were desirable.

As to the Pacific area, the Committee noted the increasing catches and the large numbers of sperm whales recorded as being at or just over the minimum length. Furthermore, the Committee understood that the factory expeditions operating in the Pacific might be increased in number or extend their catching range. They expressed the hope that any increase of whaling in the Pacific would be based on biological assessments of the condition of the stocks.

7. Pursuance of the Conservation Aims of the Convention

A memorandum presented by the United Kingdom Commissioner expressed the concern felt at the situation resulting from the withdrawal of the Netherlands and Norway from the International Whaling Convention and affirmed that, in the absence of two such important pelagic whaling countries, the conservation objectives of the Convention in the Antarctic could not be realised. For this reason all possible steps should be taken to facilitate the return of the Netherlands and Norway to the Convention.

It appeared that these two countries had left the Convention because they considered it wasteful and uneconomic for the five Antarctic pelagic whaling countries to engage in competitive catching against each other within the blue whale unit ceiling laid down, and it seemed to the United Kingdom that satisfactory conditions for exploiting the stocks would not be secured without agreement between the Antarctic whaling countries on arrangements for sharing the total catch. As the Antarctic catch limit had remained unchanged, the position of all the Antarctic pelagic whaling countries would be prejudiced if the Netherlands and Norway returned to the Convention before either national quotas had been agreed or some temporary adjustment had been made in the catch limit ceiling. The conclusion of renewed quota discussions would take time and the United Kingdom Commissioner proposed that the blue whale unit ceiling should be suspended for two seasons to enable a quota agreement to be reached and an international scheme of inspection to be established. The suspension of the ceiling could be made conditional upon the return of the Netherlands and Norway to the Convention within a short time, and to this end the other Antarc-

tic pelagic whaling countries might undertake to lodge objection to the suspension within the prescribed 90-day period unless the Netherlands and Norway rejoined. During the two-year period of suspension the Antarctic whaling countries should voluntarily limit their national catches by imposing quotas no greater than those adopted for the 1959/60 season.

With regard to the concern expressed by the Scientific Committee over the condition of the blue whale stock in the Antarctic, the United Kingdom Commissioner proposed that the catching season should be shortened by fourteen days, provided that the Netherlands and Norway would be willing to observe this regulation.

Finally the United Kingdom Commissioner proposed that a small committee of three scientists qualified in population dynamics or some other appropriate science should be appointed by the Commission to carry out an independent scientific assessment of the condition of the whale stocks in the Antarctic which would provide a scientific basis for the consideration of appropriate conservation measures by the Commission.

The following sections of this report records the action taken as a result of the Commissioner's consideration of the United Kingdom memorandum.

8. Scientific Appraisal of Antarctic Whale Stocks

The Scientific Committee gave special attention to this matter, and in the light of their recommendations and the United Kingdom suggestion for an independent assessment of the condition of the stocks by a group of scientists qualified in population dynamics or other appropriate science, the Commission agreed as follows. Firstly the *Ad Hoc* Scientific Committee was requested to carry out a detailed and specified programme to improve the collection and interpretation of data including the use of the latest methods of studying animal populations. Secondly it was decided to appoint three scientists in the field of population dynamics, and drawn from countries not engaged in pelagic whaling in the Antarctic, to assist in the assessment of the condition of the whale stocks there. They would be asked to report within one year of their appointment on the sustainable yield of these stocks in the light of the evidence available and on any conservation measures that would increase this sustainable yield. The three scientists were to be chosen by the Chairman in consultation with the Vice-Chairman of the Commission and the Chairman of the Scientific Committee. Finally in setting up this special group of scientists the Commission declared their intention to be that the Antarctic catch limit should be brought into line with the scientific findings not later than 31st July, 1964, having regard to the provisions of Article V(2) of the Convention.

The relevant resolution was proposed by the Canadian Commissioner, seconded by the South African Commissioner and adopted. The Japanese Commissioner gave support solely in principle as the resolution did not specifically require that the report of the three scientists qualified in population dynamics should go through the *Ad Hoc* Scientific Committee.

9. Antarctic Catch Limitation

To give time for the Antarctic pelagic whaling countries to reach agreement on the sharing of the permitted catch, and to support a request that the Netherlands and Norway should return to the Convention, the United Kingdom Commissioner proposed that the Antarctic blue whale unit limit should be suspended for the seasons 1960/61 and 1961/62. The proposal was received with some reluctance but was seconded by the South African Commissioner and carried by seven votes against two with four abstentions. In making this decision it was understood that should the Netherlands and Norway not rejoin the Convention the suspension would be revoked within the period prescribed for the lodging of objections by Contracting Governments.

Desiring to ensure that advantage was not taken of the suspension of the catch ceiling, the United States Commissioner proposed, and the South African Commissioner seconded, the following resolution:—

"In view of the action taken to suspend the limit on the Antarctic pelagic whale catch until the season 1962/63, the Commission resolves it to be of extreme importance that each of the countries engaged in pelagic whaling should limit the size of its national catch to a level in no event greater than that adopted for the season of 1959/60; and that the Secretary be instructed so to inform those Governments."

This resolution was carried by a majority of eight against one, with four abstentions.

10. The Netherlands and Norway and the Convention

With the aim of bringing about the return to the Convention of these two countries the United Kingdom Commissioner proposed a resolution, which was seconded by the South African Commissioner and carried by a vote of ten for, none against and three abstentions, appealing to the Netherlands and Norway to rejoin the Convention in the interest of effective conservation action which should include an arrangement for the sharing of the total catch and the introduction of an international system of inspection.

11. The Blue Whale Season

The Commission were concerned at the continued long-term decline of the Antarctic blue whale stocks as shown by the further fall in the proportion of the catch of blue whales to the combined catch of blue whales and fin whales, by the continued fall in average length and by the increase to 50 per cent of the proportion of immature animals in the blue whale catch. An amendment proposed by the United Kingdom Commissioner substituted "February 14th" for "February 1st" in Paragraph 7(a) of the Schedule, thus reducing the open season for the taking of blue whales by a fortnight. This amendment was carried by a majority of eleven against none, with two abstentions.

12. Protection of Humpbacks

The decline in the catches of humpback whales by the shore stations off the east coast of Australia and the scientific evidence on the decline of the stock of Group IV humpbacks were the background for amendments of Paragraph 6 of the Schedule proposed by the Australian Commissioner and seconded by the South African Commissioner.

The first amendment was designed to close Area IV to humpback whaling for three years and the text was as follows:—

6(2)b. "It is forbidden to use a whale catcher attached to a factory ship for the purpose of killing or attempting to kill humpback whales in the waters south of 40° South Latitude between 70° East Longitude and 130° East Longitude during the years, 1961, 1962 and 1963."

The second amendment aimed to reduce the open season for humpback whaling in Area V from four to three days, the text being as follows:—

6(3)a. "It is forbidden to use a whale catcher attached to a factory ship for the purpose of killing or attempting to kill humpback whales in the waters south of 40° South Latitude between 130° East Longitude and 170° West Longitude during the years 1961, 1962 and 1963, except for three days commencing 20th January in each year."

The third amendment replaced the phrase "in any waters" in Paragraph 6(3)—renumbered as Paragraph 6(3)(b)—by "in any other waters"; the effect being to leave the four days' open season for humpback whaling still in force within Areas I, III and VI (Area II having been closed for some years past).

The three amendments were voted upon separately and all were adopted by

majorities of eleven against one, with one abstention. The Japanese Commissioner opposed them on the grounds that they would make it harder for the Netherlands and Norway to return to the Convention; that if these countries remained outside and did not observe the new regulations this would be prejudicial to others which had remained members of the Convention; and finally that if the humpback was to be protected in the Antarctic it should also be protected in that part of its habitat which lay to the north and where it was exploited from land stations. With regard to the latter objection both the Australian and New Zealand Commissioners stated that control measures were in force in their countries and that the effect of these was to reduce catching power.

13. Observance of New Schedule Amendments by The Netherlands and Norway

The Commission were very conscious that the observance of these additional limitations on the taking of humpback and blue whales by the Antarctic pelagic whaling countries within the Convention and their non-observance by others would produce a regrettable and difficult situation. On a motion by the United States Commissioner, seconded by the South African Commissioner, it was therefore unanimously resolved:—

“That the Governments of Norway and the Netherlands be requested to observe the additional restrictions on the taking or killing of humpbacks in Antarctic Areas IV and V, as adopted by the Twelfth Meeting of the Commission”

and

“That the Governments of Norway and the Netherlands be requested to observe the alteration of the opening date for the taking and killing of blue whales from February 1st to February 14th as adopted by the Twelfth Meeting of the Commission”

and

“That the Commission instruct the Secretary to inform these Governments accordingly.”

14. Observer Scheme

With reference to the statement of the position which was before the Commission, the Commissioner for the Union of Soviet Socialist Republics stated that as long as two of the countries concerned, possessing one-half of the total number of pelagic whaling expeditions, remained outside the obligations of the Convention the setting up of any international system of control in the Antarctic would serve no useful purpose. The Soviet Government, however, confirmed its agreement to take part in any conference to discuss questions relating to the supervision of whaling on the high seas when all the countries engaged in Antarctic pelagic whaling were equally bound by the obligations of the 1946 Convention. The Commission noted this statement.

15. Meat for Local Consumption

An interpretation of the term “meat for local consumption” contained in Paragraph 9(a) and (b) of the Schedule had been adopted by the Commission at the Eleventh Meeting and subsequently circulated to Contracting Governments. The item was included in the agenda for the Twelfth Meeting because the Commissioner for the U.S.S.R. had replied that although the terms of the interpretation were acceptable to his Government the matter might usefully be discussed. At the present meeting the Commissioner for the U.S.S.R. intimated that he had no specific comment to make and that the Commission's interpretation remained acceptable to his Government.

16. The Humane Killing of Whales

The Commission considered the Report of the Expert Working Party set up as a result of the decision at the Eleventh Meeting to study the question of the

humane and expeditious killing of whales. It was noted that at the present time there was no conclusive evidence that the killing of whales by electrical means was more humane than the present method of the explosive harpoon and that the chief criterion was the speed of killing. There were no other methods likely to prove more humane. There was, however, a prospect of further progress towards the development of a satisfactory electric harpoon and the Commission agreed with the suggestion of the Working Party that to this end there should be consultation at a technical level between representatives of the United Kingdom and Norwegian industries. The United Kingdom Commissioner stated that the industry of his country was willing to take part in such consultations and the Secretary was instructed to ask those responsible for the Norwegian industry whether they would participate.

It was decided that copies of the Working Party's report should be sent to the various organisations that had been asking for information on the subject, but that an accompanying letter should point out to them that at the moment there was no conclusive evidence that electrical killing was more humane than the existing means. Finally the Commission considered that the Working Party should continue in existence and instructed the Secretary to convey their thanks to the members for their valuable work.

17. Implementing Legislation

In accepting the Technical Committee's Report the Commission noted that some countries had not sent in replies to the questionnaire on implementing legislation. The Commission therefore instructed the Secretary again to request the Contracting Governments who had not done so to send in replies or appropriate revisions of replies to the questionnaire on whaling administration and regulations which were originally circulated as appendices to the Third and Fourth Annual Reports. Governments that had joined the Convention since the original questionnaire was issued should also be asked to answer it. The attention of every member country should be drawn to the provisions of the Convention, the Schedule to which required corresponding domestic legislation. The Commission also instructed the Secretary to prepare an analysis of the information now available so that the position in the different countries could be readily compared.

18. Infractions

The Commission considered the following points made by the Infractions Sub-Committee of the Technical Committee and endorsed by that Committee:—

(a) It was not possible to make a comprehensive comparison of infractions with those of previous seasons, as only three Contracting Governments had submitted infraction reports in respect of the Antarctic area in time. The importance of these reports being in the hands of the Secretary well in advance of the Annual Meeting was emphasised.

(b) There appeared to be no marked change in the trend for Antarctic pelagic expeditions, the figures comparing favourably with those for the previous season. The increase in the percentage of undersized whales taken by the U.S.S.R. fleets was to a large extent due to the lack of experience among the gunners in the U.S.S.R.'s new expedition and to the shortage of sizeable whales. It was also accepted that the increased percentage of lost whales recorded by the Japanese expeditions was due to very bad weather.

(c) Although the total number of infractions within the Antarctic attributed to pelagic expeditions was less than in the previous season, attention was drawn to the percentage of lost whales recorded at the land stations in South Georgia, which was high in relation to that in pelagic whaling.

(d) Outside the Antarctic it was notable that the percentage of total infractions increased progressively from 0.57 in 1955 to 1.52 in 1959. It was

therefore recommended that the attention of member countries should be drawn to their obligation to maintain regular and adequate inspection of land stations.

The Commission took note of (a), (b) and (c) and approved the recommendation in (d). The Technical Committee had suggested the desirability of seeking reports from the Netherlands and Norway. The Commission concurred and instructed the Secretary to invite reports from those countries.

19. Finance

The Commission considered the following observations and recommendations of the Finance Committee as set out in their report:—

(a) The provisional statement of income and expenditure for the financial year ending 31st May, 1960, was examined. The Commission's income during the year had been reduced by £400 as a result of the withdrawal of two countries from the Convention; and there had been an increase in the charges made for the services provided for the Commission. The estimate of expenditure at £3,662 exceeded income by £662. The Committee recommended approval of the provisional income and expenditure account and the balance sheet for the year ended 31st May, 1960, and the circulation of the final audited accounts to Contracting Governments as soon as they became available.

(b) The estimate for the financial year ending on 31st May, 1961, showed an estimated excess of expenditure over income of £345, reducing the estimated balance at the end of this year to £482. The estimated expenditure made no provision for special meetings or reduction in income due to delay in the payment of annual contributions. The Committee recommended acceptance of this estimate.

(c) The U.K. Comptroller and Auditor General had asked that the accounts circulated in the Annual Reports should be those bearing his certificate and not provisional statements of accounts. The certificated accounts for the year ending 31st May, 1959, were now presented and it appeared that those for the year ending 31st May, 1960, could be produced before the end of this year. In these circumstances it was suggested that both should appear in the Eleventh Report. Thereafter it would be expected that audited and certificated accounts for the relevant year would appear in each Annual Report. The Committee recommended this procedure for approval.

(d) In view of the financial position disclosed under (a) and (b) above and of the possibility of substantial but as yet unforeseen commitments for special meetings, the Committee recommended that the annual contribution of Contracting Governments should be increased by £50 from £200 to £250 as from the commencement of the financial year beginning 1st June, 1960.

The Commission approved the recommendations at (a) and (c). There was, however, much discussion of the estimates for the financial year ending 31st May, 1961, and of the proposed increase in the annual contribution.

Eventually it was decided to delete the sum allotted to whale marking (£500) from the estimates and to add £1,000 to allow for the expenses of the meetings of the specialist group of scientists mentioned in paragraph 8 above. This increased the estimated expenditure for the year to £4,045. To offset this expenditure it was then resolved to raise the contribution for that year from £200 to £250, producing £4,000 from 16 Contracting Governments. It was also decided that the financial state of the Commission and the amount of, and the method of levying the annual contribution should be specially reviewed at the next meeting.

20. Whaling at Greenland

The Danish Commissioner sought guidance on certain points affecting whaling off Greenland and the Commission gave their views as follows:—

(1) Small boats armed with small harpoons and used for the taking of minke whales would be whale catchers under Article II of the Convention and would therefore come under Article I(2).

(2) All whales were covered by the wording of the Convention, but individual species when named in the Schedule to the Convention were subject to specific conservation measures.

(3) Paragraphs 2, 3, 4 and 6 of the Schedule applied to all methods for the taking or killing or attempted taking or killing of whales.

21. Representation at Meetings of Other Organisations

The Commission had been invited by the International Council for the Exploration of the Sea to send an observer to the 48th Statutory Meeting of the Council to be held in Moscow from 19th to 28th September, 1960. Mr. M. N. Sukhorutchenko, Commissioner for the U.S.S.R., who expected to be present at this meeting as a Delegate of the Soviet Union, agreed at the Commission's invitation to act as their observer.

22. Constitution of Committees

The Committees were constituted as follows:—

Technical Committee: Australia, Canada, Denmark, Japan, New Zealand, South Africa, Union of Soviet Socialist Republics, United States of America and the United Kingdom. Mr. Clark (Canada) was elected Chairman. The Committee set up an Infractions Sub-Committee consisting of representatives of Australia, Japan, the Union of Soviet Socialist Republics, the United States and the United Kingdom.

Scientific Committee: Australia, Canada, France, Japan, New Zealand, Union of Soviet Socialist Republics, United States and the United Kingdom. Dr. Mackintosh (United Kingdom) was elected Chairman.

Finance Committee: The Chairman of the Commission nominated Monsieur P. Gribelin (France), Mr. K. Nishimura (Japan), Mr. J. V. Scott (New Zealand), Mr. M. N. Sukhorutchenko (Union of Soviet Socialist Republics), and Dr. A. R. Kellogg (United States). Mr. J. V. Scott (New Zealand) was elected Chairman.

23. Resignation of Chairman

At the start of the meeting, Mr. Wall announced that, as he had ceased to be responsible for whaling in the United Kingdom Administration, it had become inappropriate for him to remain United Kingdom Commissioner. The Rules of Procedure required the Chairman to be elected from among the Commissioners but did not explicitly make it a condition of office that he should continue to be a Commissioner. Nevertheless he felt it right and proper that he should ask the Commission to accept his resignation as Chairman as from the close of the present meeting.

As a consequence, towards the close of the meeting, Mr. George Clark (Canada), the Vice-Chairman, was unanimously elected Chairman for the next three years on the proposal of the United States Commissioner, seconded by the Commissioner for the Union of Soviet Socialist Republics. On the proposal of the Commissioner for the Union of Soviet Socialist Republics, seconded by the Commissioner for Denmark, Mr. B. C. Engholm (United Kingdom) was unanimously elected Vice-Chairman. The retiring Chairman was thanked for his services.

24. Place and Date of Next Meeting

The Finance Committee recommended, and the Commission agreed, that the Thirteenth Meeting should be held in London beginning on Monday, 19th June, 1961.

25. Press Release

The Commission approved the issue of a Press Release to be prepared by the Secretary in consultation with the Chairman.

R. G. R. WALL,
Chairman

AMENDMENTS TO THE SCHEDULE OF THE INTERNATIONAL WHALING CONVENTION MADE AT THE TWELFTH MEETING

- Paragraph 6(2)* Retain the text of the present paragraph 6(2) but call it 6(2)(a). Add a new sub-paragraph (b) "It is forbidden to use a whale catcher attached to a factory ship for the purpose of killing or attempting to kill humpback whales in waters south of 40° South Latitude between 70° East Longitude and 130° East Longitude during 1961, 1962 and 1963".
- Paragraph 6(3)* Insert a new sub-paragraph (a) "It is forbidden to use a whale catcher attached to a factory ship for the purpose of killing or attempting to kill humpback whales in the waters south of 40° South Latitude between 130° East Longitude and 170° West Longitude during 1961, 1962 and 1963 except for three days commencing 20th January in each year".
- Retain the text of the present sub-paragraph (3) but call it (3)(b) and insert between the words "any" and "water" in the second line the word "other".
- Paragraph 7(a)* Delete "1st February" and substitute "14th February".
- Paragraph 8(a)* Delete the words "in any one season" in the last line and substitute "in 1962/63 or in any subsequent season".

APPENDIX IV REPORT OF *AD HOC* SCIENTIFIC COMMITTEE OF 13th-16th JUNE, 1961

I. INTRODUCTION

1. The *Ad Hoc* Scientific Committee assembled by the Chairman of the Commission in accordance with a decision made at the Eleventh Meeting met at the East Block, Ministry of Agriculture, Fisheries and Food, Whitehall Place, London, S.W.1., on Tuesday, 13th June, 1961, at 11 a.m. and continued for the following three days.

2. There were present Dr. Kesteven (Australia), Dr. Sprules (Canada), Dr. Budker (France), Dr. Omura (Japan), Dr. van Utrecht (Netherlands), Dr. Jønsbø (Norway), Mr. Rice (U.S.A.), Dr. Arseniev and Dr. Fedorov (U.S.S.R.) and Dr. Mackintosh, Dr. Laws, Dr. Crisp and Mr. Brown (U.K.). The Secretary of the Commission was also present. Dr. Mackintosh was elected Chairman. It was noted with regret that Prof. Ruud and Prof. Slijper were unable to be present.

II. EVIDENCE AVAILABLE TO THE COMMITTEE

Catch and Effort Statistics

3. The Committee had before them a provisional table of statistics of the catch taken in the Antarctic during the 1960/61 season. The Committee also had a copy of the report of Australian humpback catches in the 1960/61 whaling

operations. Attention was also paid to the detailed statistics for the 1959/60 season which had not been available for full consideration at the time the *Ad Hoc* Committee met last year.

4. The Committee must observe here that once the results of their effort to assess the stocks by modern methods of population study become available it will be absolutely necessary for the Committee to have before it, at subsequent meetings, more detailed data on catch and effort.

Reports on Progress in Research

5. Reports were received from Australia, Japan, Netherlands, Norway, U.K., U.S.A. and U.S.S.R. These showed that much research on whales is going on at present.

6. The Committee believe that they could more effectively perform their work if these reports gave fuller information, in quantitative form where appropriate, on the different types of research operations carried out. This would enable them to appraise research programmes in the sense of the terms of reference given to the *Ad Hoc* Committee meeting as a Workshop. It would also assist if these reports were prepared according to a standard pattern. The Committee therefore propose the following plan for these reports:—

- (1) Species and Stocks Studied.
- (2) Field Observations and Collections.
- (3) Marking (releases and returns).
- (4) Laboratory Work, (age reading, maturity studies, etc.).
- (5) Development of techniques.
- (6) Research Results.
- (7) Publications.

III. RESEARCH PROGRAMMES

Catch Analysis

7. The table presents a summary statement of the main results of biological sampling of the 1960/61 catch. Attention is drawn to the very large number of ear plugs collected by the Japanese research group. Availability of material in this quantity makes a very significant contribution of the study of the whale stocks.

Marking

8. The Rome report drew attention to the information which marking can furnish on:—

- (1) Migration and movements.
- (2) Age and growth.
- (3) Estimation of mortality rates and population size.

9. Elsewhere in the Committees' report (IV) we have drawn attention to the critical importance of defining the limits of each stock and indicated that marking is indispensable for this purpose.

10. The major part of the Committees' work for the immediate future is the use of modern methods of population studies in order to determine the properties and size of each stock of whales. Most of this work is carried out by analysis of data derived from catches and it is of very considerable importance that marking provides an independent and objective set of information on certain of the characteristics. The correlation of age readings and the time known to have elapsed between marking and recovery provides a critical test of the various methods of age determination by ear plugs, ovaries and baleen plates.

TABLE 1

Summary statement of biological material relating to the 1960/61 whaling season.

Country	Catch (1960/61)	Age data	Marking Marked	Marking Recovered	Other Material
Australia	2,178	702 earplugs 545 ovaries	115	19	527 testes weights.
Norway	12,504	1,200 baleen plates and 600 pairs of ovaries	nil	13	General biol. data for each whale.
U.K.	Pelagic S. Georgia c. 3,494 2,500	1169 ear plugs c. 900 ovaries	nil	7	Anatomical and reproductive material.
Netherlands	2,211	Ovaries from about 550 fin whales, some baleen material and few ear plugs (ovaries from more than half catch of females)	nil	?	Anatomical and Embryological. Some ear plugs.
Japan†	13,592	10,000 ear plugs c. 1,000 ovaries	238	31	Serological data 1,800.
U.S.S.R.†	7,009	—	about 62	—	Biological data for part of the whales caught.
U.S.A.*	c. 260	c. 150 earplugs	none	none	Food, parasites, blood samples, etc..

† North Pacific data not included.

* Summer 1960 season.

11. Marking will certainly shorten the task of deciding the criteria for the interpretation of ear plugs or other structures used in age determination and this will provide an important economy.

12. Marking can provide independent evidence on mortality rates and population size but there are serious technical problems relating to the recovery of marks which need further investigation. Moreover, the Special Committee has emphasised that marking the major stocks of Antarctic fin whales for this purpose must involve a large amount of marking and it would appear that the number of marks released each season would have to be increased by a factor greater than ten times. The Committee hesitate to propose such an increase which must necessarily be carried out by specially chartered vessels at considerable cost.

13. With regard to humpback whales, however, the Committee believe that because of their accessibility during their northward migration past the coasts of Australia and New Zealand, it should be possible to mount a marking programme of dimensions appropriate to these studies of mortality rates. Because of the technical difficulties relating to the recovery of marks the Committee do not feel able to recommend such a programme at this stage. However, they recommend that a close study be made of these difficulties and that if they can be removed, a suitable programme be initiated.

14. The result of the foregoing discussion is that the Committee propose to plan marking operations at present solely for the purposes of obtaining information on (1) migration and movements, (2) age and growth.

15. Since the Rome meeting, further information on the progress of marking has become available.

16. In the Antarctic some 300 whales (blue, fin, humpback, sei and sperm) were marked in the 1960/61 season by Japanese and U.S.S.R. expeditions. Some 50 marks were recovered during the season and these included 2 fin whales which had been marked off the West Coast of South America which provide valuable information on the migrations of this species.

17. Future Marking: Marking operations can be considered in two principal classes: A. Marking that can be carried out during whaling operations and which costs relatively little. B. Marking involving the use of chartered vessels which is expensive.

The Committee's task is to decide whether marking directed towards the investigation of (1) migration and movements, (2) age and growth, can be adequately covered by operations of class A, and if not, whether additional operations of the second kind (class B) should be considered.

18. Future marking may be grouped under three main headings: (1) Antarctic marking, (2) Australian, New Zealand and South-West Pacific humpback marking, (3) Other marking in warmer waters (including the marking of pigmy blue whales).

19. Regarding (1), every effort should be made to get all expeditions to co-operate in Antarctic marking.

20. Regarding (2), it is clear that adequate marking of the humpback whale populations off the coasts of Australia and New Zealand can be carried out, and this should be continued.

21. Regarding (3), it appears that marking in warm waters elsewhere is not likely to be possible during whaling operations and that it will be necessary to charter vessels for this purpose, including the marking of pigmy blue whales. Since warm water marking is essential for the more accurate delineation of the geographic limits of the southern populations of whales, and since it also

meets the recommendation of the Rome meeting that marking in regions away from catching areas should be greatly increased, the Committee recommend that marking be carried out off the west coast of South America and off both coasts, east and west, of South Africa. The number of whales to be marked should preferably be not less than 50 fin whales and 50 sperm or sei whales per annum of both east and west coasts of South Africa, and 100 sperm and 50 baleen whales per annum off the west coast of South America. The cost of such marking using chartered vessels is likely to be around £4,000 per annum in each region.

22. It may in future be necessary to extend this type of marking to other areas where no whaling is carried out, e.g., the possibility of marking in the Indian Ocean during the S.C.O.R. programme in 1962/63 is being explored.

23. Any plans for future marking should be kept under continual review in the light of progress in population studies. The Committee has therefore asked Mr. Brown (acting as convenors), Dr. Omura, Dr. Chittleborough and Dr. Arseniev, to keep in touch with this work, to keep the progress of these operations under review, and to make suggestions from time to time with regard to planning and co-ordination.

Other Lines of Research

24. During the 1960/61 Antarctic season additional biological research was carried out. This included the collection by the Japanese of serological data from a large number of fin, pigmy blue, and sperm whales. The application of serological studies to the catches of different species may yield results of great importance for the investigation of the geographical limits of the different southern hemisphere populations and the Committee recommend that they be continued and if possible extended.

25. Anatomical collections were also made by biologists attached to several expeditions. These collections included stomach contents (including material from pigmy blue whales), which are of great importance in investigating the ecological relationships of the different species.

Work Involved in the Population Studies Proposed by the Rome Workshop

26. For the information of the Commission a detailed statement is made in the appendix, of the programme of computations that has to be carried out in order to make the necessary stock assessments. The primary objective is the construction of age composition tables for each distinct stock of whales. The programme set out in the appendix is to be applied to the commercial data in the possession of the Bureau of International Whaling Statistics. These data relate to some 800,000 whales, with regard to which there is information on length, sex and time and place of capture. In order to convert this material into age compositions, use must be made of the biological data collected by individual research groups.

27. The data in the possession of B.I.W.S. and the individual institutions can be classified according to the following variables:—

- (a) Species (of which there are 3)
- (b) Sex („ „ „ „ 2)
- (c) Geographical area (there are 30 on average in each year)
- (d) Year and month („ „ 4 months in each of say 20 years)
- (e) Expedition („ „ on average 18)

Cross multiplication suggests that there are 259,200 categories, but in fact the number of categories over which the available data are actually distributed is very considerably less than this. Estimates by the Institutions indicate that the

true figure for biological material is of the order of 15,000. Even this figure is too high as a basis for computations, since it means, dividing into 800,000, that there would be, on the average, only 53 whales in each length frequency table. Some lumping of these tables will be possible where more than one expedition has worked in a particular sector in a particular month. Following recognised statistical principles it would appear that, in order to obtain primary length frequency tables with adequate representation in each class interval, it will be necessary to lump material so as to have not more than about 4,000 primary length frequency tables, in each of which would be entered on average some 200 records.

28. This then has consequential effects on the preparation of the age-length keys, of which there would be an equal number. The number of maturity/length keys would be less than half of this figure.

29. The most pressing problem concerns the criteria to be adopted in lumping the raw data so as to reduce the number of primary tables to this magnitude, and permit of accurate computations and reliable conclusions. Lumping cannot be done for species, sex or year; this leaves three possibilities—to lump with regard to area, month and expedition. Until this problem is solved it will not be possible to make a precise estimate of the number of length frequency tables, age/length keys and maturity and pregnancy/length tables to be prepared. However, assuming that the rough estimate made above, of 4,000, is near to the figure that will be reached after closer study, some indication can be given of the order of magnitude of the work involved.

30. In summary the computational steps are as follows:—

- (1) Preparation of length frequency tables.
- (2) Preparation of age/length keys.
- (3) Conversion of age/length keys into percentage ages at length.
- (4) Conversion of length frequency tables to age frequency tables (by application of (3) to (1) above).
- (5) Preparation of maturity and pregnancy/length keys.
- (6) Conversion of (5) into percentage maturity and pregnancy at each length.
- (7) Conversion of length frequency tables to maturity and pregnancy frequency tables by application of (6) to (1).

Step (1) is a machine operation to reduce the 800,000 B.I.W.S. cards to 4,000 summary cards.

Step (2) involves the completing of form C by research groups, and the preparation of cards from these forms. It is thought there would be 20 cards per form, and since there will be 4,000 forms this means 80,000 cards.

Step (3) is a machine operation to produce a new set of 80,000 cards.

Step (4) is a machine operation in which the cards produced for step (3) are processed with those of step (1) to produce the required overall age composition tables.

Steps (5) and (7) are a repetition of this process.

31. The Committee unfortunately was unable to obtain information on the amount of time required for the volume of work indicated in each of the above steps, and hence could not make an estimate of the cost of the work. However, it hopes that Dr. Chapman will have been able to obtain estimates of the per unit cost of these operations, and that it will be possible during the Meeting of the Commission to make an estimate of time and cost.

32. The importance of finding as quickly as possible criteria for amalgamating the sets of data, so as to produce tables that are of a workable number and

statistically satisfactory is very great indeed and the Committee recommends that a small group of research workers including Mr. Vangstein and Dr. Chapman should meet at the earliest possible opportunity to try and find a solution to this problem.

IV. STATUS OF STOCKS

General Observations

33. In undertaking this annual task of making a preliminary review of evidence on the state of whale stocks, the *Ad Hoc* Scientific Committee have been considerably influenced by the decision, taken by the Commission at their 12th meeting with regard to development of scientific enquiry into these stocks, and by the reports prepared in Rome by the *Ad Hoc* Scientific Committee meeting as a Workshop and by the Special Committee of Three, convened and appointed in accordance with the Commission's decision referred to.

34. The terms of reference given by the Commission to the *Ad Hoc* Scientific Committee meeting as a Workshop, whilst directly mentioning availability of data, methods of biological research and of measurement of effort, and programmes of field collection, directed attention to the use of methods of research into the dynamics of populations. The terms of reference of the Committee of Three related expressly to the methods used in studies of population dynamics. The reports of these two bodies disclose that the meeting at Rome gave research workers an opportunity of examining the applicability of more advanced population research methods to stocks of whales, and led to the formulation of plans for vigorous action to make use of these methods. When successful these methods enable research workers: (1) to present an accurate assessment of the condition of the stock under investigation, (2) to make a prognosis of the consequences of various courses of action with regard to exploitation of the stock, and (3) to indicate ways in which a sustained yield may be obtained; moreover, it is possible to indicate how a sustained yield may be brought to an optimum.

35. The Committee believe that these results could be obtained with regard to whale stocks but, as shown in the reports from the Rome meeting, much work has yet to be done to assemble all data now in the hands of research workers and to submit these data to the necessary procedures of analysis and interpretation. *It is absolutely necessary that the work proposed in the report of the Rome meeting should be carried through with the utmost speed and when this is done the Committee will be in a position to furnish the Commission with more accurate advice on which to formulate regulations for the rational conduct of whaling operations.*

36. Pending the development of this work the Committee must continue to resort to the rather qualitative indexes they have employed in the past, and the observations which follow, on the present situation, are made in this sense. However, before making these observations it wishes to draw the attention of the Commission to certain generalisations, proper to the general theory of populations, that have a relevance to the investigation and regulation of whale stocks. Acceptance of these generalisations is unavoidable and does not depend upon the completion of the studies planned at the Rome meeting.

37. A. Each independent stock should as far as possible be analysed and assessed separately; predictions should be made separately for each stock, and regulatory measures should be so formed that the kind and intensity of exploitation to which each stock is subject is appropriate to its properties.

38. The "independence of a stock" refers to its being self-contained with regard to reproduction and to its response to forces repressing it or permitting its expansion. This generalisation has several consequences. First, it means for research that an early task is to identify the stocks and to define as closely as

possible the limits of distribution of each in time and space; marking operations are virtually indispensable for this. It further means that every effort must be made to organise the keeping of records of whaling operations and of biological sampling so as to be able to segregate data relating to each stock. Secondly, it follows from this generalisation that regulatory measures framed for several stocks simultaneously (whether of a single species or not) are likely to be ineffective and might even fail completely. For example, setting a limit to the total catch to be taken from several stocks, without setting a limit for each stock separately, may result in a progressive exhaustion of one stock after another. This is because the fishing mortality induced by the total catch, which might not be excessive to any one of them if evenly shared among them, might prove to be quite destructive when brought to bear upon one alone. This result is likely to occur where a preference exists among the stocks. Setting an overall limit is likely to give a false sense of security.

39. B. Regulatory measures should be framed in the light of evidence on all the relevant characteristics of the stock, even though each regulation may relate to only a single characteristic, such as the age at attainment of maturity.

40. The consequence of this is to suggest that the validity of the regulations at present in existence, since they were framed without the benefit of a full account of the stock, may be called into question. However, as is shown in the next generalisation, approximate measures sometimes have to be adopted temporarily to provide some restraint on catching in situations where provisional indexes show with reasonable certainty that the level of exploitation is greater than the stock can sustain. In particular the Committee refer to the existing set of legal minimum lengths for which the main argument, at the time they were established, was that they were near to the average length at attainment of maturity. The setting of a legal minimum length simply with regard to average size at attainment of maturity could be more rigorous than necessary, or could be quite insufficient; the methods of population analysis could provide estimates of the yield to be obtained from a given stock at various legal minimum lengths. Nevertheless, in the present situation there is little doubt that most whale stocks are subject to excessive fishing mortality and consequently, regardless of their appropriateness, to reduce any of the various legal minimum lengths would only be to increase the fishing mortality and further to reduce the stocks.

41. C. Although the direct information on the size and characteristics of stocks that methods of population analysis can provide, constitutes the best basis on which to frame a positive system of regulation, in the absence of such analysis various secondary indexes of the condition of the stocks give a valid basis for interim restraining measures.

42. The confidence to be placed in such evidence will increase with the number of such indexes available and with the agreement they show. Changes in catch per unit effort, in average length or age, and in certain compositional characteristics of the catch, are among the more important of these indexes.

43. Formulation of the foregoing generalisations at this juncture was necessary because the Committee are called upon to comment on several matters for which they need the results of population studies to be able to make an effective answer. The observations they can make at this time will, they hope, be seen in proper perspective in the light of the foregoing generalisations.

Condition of Stocks

44. (a) Blue Whale: Although the total 1960/61 catch of Blue whales was higher than that of any of the preceding five years, a large proportion of it consisted of pigmy blue whales taken by Japanese expeditions in an area farther north than in former years; the same apparently was true of the 1959/60 catch,

and hence it is found that the blue whale catch (apart from the pigmy blue whales) continues uninterruptedly its downwards trend. Associated with this index are several other lines of evidence which indicate that the stocks of this species are being given no opportunity of regeneration, and hence that continued fishing of them at the present level of effort will result in progressively lower catches. For these reasons the Committee wish to reiterate the views expressed last year, namely that blue whales need total protection for a period.

45. (b) Fin Whale: The total 1960/61 catch of this species was slightly higher than that of preceding years. However, several indications have been given that a downward trend in the abundance of this species has been initiated, as noted in paragraph 11 of the Committee's report to the Twelfth Meeting in 1960. It is clear that unless some restraint is placed on exploitation the trend referred to will continue and catches will begin to fall; this fall could be deferred by increases in effort but these would only steepen the trend and accelerate the process.

46. (c) Humpback Whale: The Committee comment as follows on each of the six southern humpback groups in the light of such knowledge or evidence as they have:—

47. With regard to Group I (South East Pacific), there is no evidence of a decline in the population. It is one which has not been long hunted, but it is likely to be a rather small stock. No recommendations are made.

48. Group II (Atlantic region) has been hunted since the beginning of Antarctic whaling, and the stocks are severely reduced. The Committee feel sure that it would be best to maintain complete protection of the populations in this region.

49. In Group III also (West Indian Ocean) the stock has been much reduced. Although no new restrictions are suggested, it is important that no additional taxation should be initiated.

50. The 1960/61 catch from the Group IV (East Indian Ocean) stock of this species was still lower than that of preceding years. Evidence on intensification of effort and on composition of catch indicates that the stock has been grossly reduced to a level at which catching, continued, could be sustained at only a very low level—say, between one and two hundred from the entire group (i.e., from West Australia and Antarctic Area IV); any greater catch can only further aggravate the situation.

51. The 1960/61 catch from the Group V (South West Pacific) stock of this species more or less maintained the level of preceding years but on the Australian coast the catch per unit effort fell severely, and this, with evidence on catch composition, indicates that the total taxation of this stock has been excessive. There are grounds for considering that this stock is of a magnitude to give a sustained yield not exceeding one thousand; if this should prove to be true it will be advisable to adopt measures to ensure that this limit is not exceeded.

52. The hunting of whales in Antarctic Area VI (Central Pacific) is only a recent development. There is some evidence to suggest that what has been regarded as a distinct Group VI stock is in fact only part of Group V; if this should be confirmed by marking, the designation of 'Group VI' should be discontinued, and any measures adopted for Group V should be extended eastwards.

53. (d) Sei Whale: The increase in the Antarctic catch of sei whales was noted. There is at present no information on the condition of the sei whale stock. More marking and research on the general biology of this species is needed.

54. (e) Sperm Whale: The only evidence on the status of the stocks is a progressive decline in length of those taken in the Antarctic.

V. MATTERS BEFORE THE COMMISSION

55. *Opening date of baleen whale season.* (I.W.C. Agenda, item 18(a)).

In previous years the Committee has preferred no advance in the opening date because of the tendency to catch a bigger proportion of pregnant females in the early part of the season. Former analyses of data point to such a trend, but new and comprehensive analyses are needed before the Committee are able to give an exact statement.

56. *Humpbacks in Greenland waters.* (I.W.C. item 18(c)).

The Committee see nothing against an annual catch of 10 whales as proposed.

57. *Minimum lengths in the northern hemisphere.* (I.W.C. item 18(d)).

Minimum lengths in fact now in operation are as follows:—

	Land stations and pelagic factories		Land stations where meat is used for local consumption as human or animal food	
	Northern Hemisphere	Southern Hemisphere	Northern Hemisphere	Southern Hemisphere
Blue	70	70	65	65
Sci	40	40	35	35
Humpback ..	35	35	35	35
Fin	55	57	50	55
	Northern Hemisphere	Southern Hemisphere	Land stations with no reservations on purpose for whales landed Northern Hemisphere	Southern Hemisphere
Sperm	38	38	35	35

It is understood that the minimum lengths were instituted many years ago as a conservation measure, on the general principle that in an exploited population it is preferable that the weight of taxation should bear more on the mature than the immature animals which have not reproduced themselves. Sometime ago reduced lengths were authorised for a special purpose, i.e. for local consumption as human or animal food. The Canadian proposal to remove this proviso would, in the mind of the Committee, be in effect to lower the basic size limit of whales delivered to land stations in the northern hemisphere. Not enough is known of the North Pacific stocks for the Committee to say whether a lowering of the minimum length would have any injurious effects.

On behalf of the *Ad Hoc* Committee

N. A. MACKINTOSH,
Chairman

16th June, 1961

APPENDIX. PROGRAMME OF CALCULATIONS

I. *Estimation of Mortality (Z, F and M)*

1. Prepare age/length keys for population segments (10° sectors by months, dealing with each sex separately). (Table from Form C.).

2. Convert each key to percentage ages at length.

3. Apply each key in percentage form to total frequency table for the population segment (Table from Form E) to construct total age composition for the segment.

4. Add together tables resulting from stage 3 according to rules to be established, perhaps involving weighting, to constitute age composition for distinct

stocks. For this purpose criteria for the identification of stocks must be established. (Also see IV below.).

5. Calculate mortality rates:—

(a) Convert age composition tables (given by A4 above) to C/E (also see II below).

(b) Calculate S (survival) within year class between pairs of years.

(c) Obtain Z (total instantaneous mortality rate) corresponding to each value of S.

(d) Weight each value of Z by corresponding catch per unit effort values (i.e. C/E from S (a) above).

(e) Sum weighted values of Z and divide by sum of pairs of C/E to obtain new values of \bar{Z} for pairs of years.

(f) Plot \bar{Z} against \bar{E} .

II. *Estimation and Calibration of Effort*

1. Use table from Form E2 to complete C/E (catch per unit effort) for part of the catching material, then apply this value to the total catch to obtain an estimate of total effort.

2. Table from Form B is to be used for a pilot operation (see Workshop report p. 10) aimed at a more precise estimate of effort.

III. *Calculation of Recruitment (R)*

1. Prepare maturity and pregnancy/length keys for population segments (10° sectors by months, for females only.) (Table from Form D).

2. Convert keys to percentage values at length.

3. Apply each key in percentage form to total frequency table for each population segment (Table from Form E), to obtain total mature and pregnant females for the segment.

4. Add Tables resulting from stage 3 together, according to rules to be established (see IV below).

5. Estimate recruitment into first fully recruited class.

6. Correlate estimates from III 5 above with number of mature females producing them.

IV. *Examination of likely sources of error in above estimates*

1. Bias in the biological sampling of the catch, e.g. possible under-representation of ear plugs from small whales.

2. Distribution of the stocks in time and space. This is related to migration patterns and segregation of independent stocks or races. It must be taken into account in assembling the age, maturity and pregnancy data.

3. It should be possible to study changes in the biological characteristics of the stocks by analysis of the data assembled in Tables from Forms C and D.

4. The precise estimation and calibration of effort is of the utmost importance and the pilot operation (see II above) should indicate what refinements are necessary in drawing up a revised form E2.

V. *Population Models*

1. Setting up models for numbers and calculating yield.

2. Setting up models for weight and calculating yield.

APPENDIX V

REPORT OF THE WORKING PARTY ON HUMANE AND EXPEDITIOUS METHODS OF KILLING WHALES

1. At their Eleventh Meeting in June, 1959, the Commission decided that an investigation should be organised, as provided for under Article IV(1)(a) of the Convention, to examine the advantages and disadvantages of the various

methods of killing whales which had so far been tried, with a view to recommending a programme of research and development for the improvement of existing methods and the development of new ones. Evidence on experiments already carried out was to be sought from the appropriate sources. It was further decided that the Chairman of the Commission and the Secretary should invite the co-operation of the delegations and of the whaling companies and appoint a small group to consider the present position and the possibilities of new developments in the light of the available information on the subject and to report to the Commission at the Twelfth Meeting. The Commission's discussion of the subject at the last meeting is recorded on pages 17-20 and 99-103 of the Verbatim Report (Eleventh Meeting: Document XIV).

Constitution of the Working Party

2. After consultations by the Chairman and the Secretary with the Commissioners for Canada, France, Japan, U.S.S.R. and the U.S.A., the former Commissioners for the Netherlands and Norway and the whaling industry in the United Kingdom, the working party was constituted as follows:—

Chairman:

Mr. R. G. R. Wall (Chairman of the Commission)

Secretary:

Mr. R. S. Wimpenny (Secretary to the Commission)

Dr. P. Budker (France: Director of Whaling Research, National Museum of Natural History, Paris)

Dr. G. J. Lienesch (The Netherlands: Director of Fisheries)

Professor E. J. Slijper (The Netherlands: Director of Zoological Laboratory, University of Amsterdam)

Professor Steinar Hauge (Norway: Professor of Veterinary Science, The Veterinary Institute, Oslo)

Sir A. Vyvyan Board (United Kingdom: Formerly Director of Hector Whaling Ltd.)

Sir Miles Clifford (United Kingdom: Adviser to Hector Whaling Ltd.)

Dr. P. G. Croft (United Kingdom: Physiologist, Royal Veterinary College, London)

Mr. R. Marsden (United Kingdom: Technologist, The General Electric Company Ltd., of England)

Meetings

3. Two meetings were held, one on Friday, 4th March, and the other on Monday, 9th May.

Documentary Information

4. The following written reports and comments were before the Working Party:—

Electric Harpooning of Whales: Report by the Norwegian Whaling Association.

Experimentation with Carbonic Acid Harpoons during the 1958/59 Season: Report by the Netherlands Whaling Expedition.

Experimental Work on Killing Whales with Gas Harpoons: Report by Messrs. Chr. Salvesen & Co. (A United Kingdom Whaling Company).

"Cruelty Involved in Killing of Whales". Notes compiled by Mr. R. De B. Trouton of Messrs. Hector Whaling Ltd. (United Kingdom).

Statement by Mr. R. De B. Trouton (as member of the United Kingdom Delegation) at the Eleventh Meeting of the Commission.

Outline of Experiments into the use of Electric Harpoons for Whale Killing:
Report by Mr. Marsden of the General Electric Co. Ltd. of England.
Letter from the Japanese Commissioner on the effects of electric killing of whales.
Electric Whaling in New Zealand: Notes by Mr. W. H. Dawbin.
Information supplied by the Humane Society of the U.S.A. about methods of capture by poisoning or anaesthetisation of large land animals by special drug firing gun, with a view to possible adoption for use against whales.
Written observations by Sir Vyvyan Board and Mr. R. Marsden on the documentary evidence were also circulated to the Working Party before the first meeting.

Suffering of Whales

5. A first consideration was whether it was possible to establish that the degree of pain suffered by whales was increased or decreased by the actual method of killing as distinct from the time taken to kill. It was concluded that pain could not be so measured and that for humanitarian purposes the time taken to inflict death must be regarded as the significant factor. The Working Party then considered whether in the present state of knowledge there were any possibilities for the development of quicker and surer methods of killing than the present conventional method of the explosive harpoon by the use of (1) poisoning or anaesthetisation equipment, (2) gas harpoons or (3) electrical harpoons and, if so, whether the method was capable of practical application by the whaling industry.

Poisoning or Anaesthetisation Equipment

6. The conclusion on this method was that it was unlikely to offer any practical alternative in the foreseeable future. There were three major disadvantages. In the first place no reliability could be attached to the method. From the evidence of experiments so far tried on various animals there appeared to be considerable uncertainty both as regards the amount of drug necessary to cause paralysis, anaesthesia or death and the effect on individual animals. Nor was there any guarantee that the method would be more humane. Nicotine with which experiments with the American gun apparatus had been made was a paralysing not an anaesthetising agent and was liable to cause convulsions before paralysis. Secondly, there would be danger of contamination of the whale products and of the people who handled them. This danger would be present whatever drugs were used and particularly so in the case of curare, another of the substances suggested for use with this equipment. Thirdly, the expensive nature of the drugs and the large quantities required would in any case rule out general adoption of such methods by the whaling industries on economic grounds.

Carbonic Acid Gas (CO₂) Harpoons

7. It was noted from the records of experiments that had been carried out that it had not been possible to inflate a whale with a CO₂ harpoon and that there had been only one kill and that could have been attributed to a shell harpoon. Even if defects in the valve mechanisation of the harpoon which were found during the experiments could be corrected there remained the major and practically insuperable problem of hitting the whale in the right place and at the right angle to ensure on the one hand that the gas did not escape too quickly through the harpoon entry wound and on the other that it was not released so slowly as to have little or no effect on the whale. The Working Party saw no immediate prospect of the CO₂ harpoon providing either a quicker or more humane way of killing whales than the method now in use.

Electrical Harpooning

8. The reports of the experiments that had so far been carried out independently by British and Norwegian whaling companies received close study. It was noted that while the experiments had not proved consistently satisfactory in either case the reasons for this were not the same. Experience in the use of electrical equipment and the degree of success obtained had varied considerably.

9. It was stated that during the experiments carried out by the British expeditions whales had been killed regularly when the correct voltage and amperage had been applied and there had been no accidental through shots of the harpoon. 220 volts, 40–60 amperes and 50 cycles were found to be most effective. In these cases paralysis and stiffening appeared to be instantaneous and the average time from the impact of the harpoon to the signs of death—the whale floating on its back with open jaw—was 2–5 minutes. When insufficient current was used the whale sank, attributed to the fact that the charge was insufficient to cause the muscular convulsions of the respiratory passage which trapped air in the lungs and brought the whale to the surface. When this happened death was delayed. In some cases the whale revived and broke away before further shots were fired or it could be secured for killing by other means. After subsequent work and experiment the generating equipment and the design of the harpoon were improved but one of the most difficult problems was encountered in the speedy attachment of the electrical forerunner to the harpoon and in confining the conductor in the forerunner. This had to be done in such a way that it did not on the one hand break through the yarn and on the other was not bound in so tightly as to impede flight. Unfortunately, up to date these problems have not been satisfactorily solved. In the view of the company concerned the present device is not satisfactory and much more work remains to be done.

10. The experience of the Norwegian whaling companies by numerous experiments in the period between 1934 and 1954 was that electrical harpooning was a failure because of the difficulty and uncertainty of providing a rapidly killing first shot by electricity. The time taken to inflict death was found to be longer than in the case of shell harpooning and less humane. In most cases when electrocution was tried the whales had to be reshot by shell harpoon. When only one electric harpoon was used several whales broke or drew out more than three lines so that the conductor became too short. The whales usually showed a tendency to sink slowly when electrocution was used. Through the Norwegian experiments satisfactory electrical harpoons and nylon forerunners with conductors have been developed.

11. Accordingly the Working Party feel that it should be possible to kill whales electrically in 2 to 5 minutes if the special advantages of the British generating equipment and the superior Norwegian forerunners and harpoons could be combined. Such a combination might well provide a speedier method of killing than the shell harpoon and be no less practical. It was therefore concluded that the possibilities of electric harpooning were sufficiently promising for Norway and the United Kingdom and any other of the whaling countries who have undertaken electrical experiments to collaborate together with a view to further development on these lines.

12. The first step in this direction should be a discussion between the Norwegian and British companies on the feasibility of this and the Working Party are in fact seeing if this can be brought about so that the Commission may be advised of the result at their Twelfth Meeting in June this year and be able to consider what the next step should be.

On behalf of the Working Party.

31st May, 1960

R. G. R. WALL,
Chairman of Commission

APPENDIX VI INCOME AND EXPENDITURE ACCOUNT FOR THE YEAR ENDED 31st MAY, 1961

EXPENDITURE		INCOME	
Previous Year £ s. d.	£ s. d.	Previous Year £ s. d.	£ s. d.
	Secretary's remuneration: £		
	Fees 550		
	Allowance in lieu of travelling expenses 150	3,000	Contribution for 1960/61 from 17 Contracting Governments at £250 each 4,250 0 0
700 0 0	Administrative, clerical and typing staff provided by the Ministry of Agriculture, Fisheries and Food, and overhead expenses of the Ministry 1,100 0 0		
1,025 0 0	Rent of Secretary's Office 150 0 0		
150 0 0	Stationery, printing and postage 333 16 1		
275 15 9	Cost of meetings 794 10 5		
1,010 19 3	Whale marking: Contributions to National Institute of Oceanography — — —		
500 0 0	Costs of special scientific investigation 960 16 6		
— — —	Balance, being excess of income over expenditure, transferred to Balance Sheet 210 17 0	661 15 0	Balance, being excess of expenditure over income, transferred to Balance Sheet — — —
£3,661 15 0	£4,250 0 0	£3,661 15 0	£4,250 0 0

BALANCE SHEET, 31st MAY, 1961			
LIABILITIES		ASSETS	
Previous Year £ s. d.	£ s. d.	Previous Year £ s. d.	£ s. d.
	Ministry of Agriculture, Fisheries and Food 1,351 18 1		Cash at Paymaster General 2,245 19 9
	Others 450 5 0	122 6 0	Less Payable Orders outstanding 31st May, 1961 148 4 10
1,683 19 7	1,802 3 1		2,097 14 11
	Income and Expenditure Account:		
	Balance 1st June, 1960 826 17 7		Outstanding contributions:
	Add Balance transferred 31st May, 1961 210 17 0		Argentina 1960/61 250 0 0
826 17 7	1,037 14 7		Mexico 250 0 0
			Panama 242 2 9
£2,510 17 2	£2,839 17 8		742 2 9
			£2,839 17 8

(Signed) R. S. WIMPENNY, Secretary
International Whaling Commission

2nd Aug., 1961.

I have examined the above Account and Balance Sheet. I have obtained all the information and explanations that I have required, and I certify, as the result of my audit, that in my opinion the above Account and Balance Sheet are correct.

(Signed) E. G. COMPTON, Comptroller and Auditor General

Exchequer and Audit Department
31st August, 1961

APPENDIX VII SUMMARY OF INFRACTIONS

(The following details of infractions reported for the 1960/61 season (Antarctic) and 1960 season (Outside the Antarctic) should be regarded as an addition to the summary constituting Appendix VI to the Commission's Eighth Report, Appendix VIII of the Tenth Report and Appendix VII of the Eleventh Report.)

YEAR	Antarctic Season (Including South Georgia)						YEAR	Outside Antarctic				
	Whales taken	Undersized whales		Lactating whales	Whales lost	Whales remaining in sea over 33 hours		Whales taken	Undersized whales		Lactating whales	Whales lost
		No.	%						No.	%		
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)
1960/61	1,744	73	4.18	6	1	BLUE WHALES —	1960	100	3	3.00	—	—
1960/61	28,761	312	1.08	59	93	FIN WHALES 43	1960	3,323	47	1.41	16	9
1960/61	5,820	5	0.09	1	55	OTHER BALEEN 6	WHALES 1960	4,154	42	1.01	31	10
1960/61	4,815	7	0.15	1	9	SPERM 5	WHALES 1960	9,818	77	0.78	—	13

APPENDIX VIII

List of Reports received by the Commission during the year ended 31st May, 1961 (arranged under countries or organisations alphabetically with date of receipt in brackets).

Food and Agriculture Organisation of the United Nations

The State of Food and Agriculture, 1960. (17th October, 1960.)

World Fisheries Abstracts; January–February 1960, Vol. 11, No. 1 (4th July, 1960); March–April 1960, Vol. 11, No. 2 (22nd August, 1960); May–June 1960, Vol. 11, No. 3 (31st October, 1960); July–August 1960, Vol. 11, No. 4 (31st October, 1960); November–December 1960, Vol. 11, No. 6; list of periodicals searched as at 31st December, 1959 (22nd February, 1961).

Bulletin No. 9, 1960 (22nd August, 1960); No. 10, 1960 (6th October, 1960).

Report of the 10th Session of the Conference, 31st October–20th November, 1959. Rome 1960. (12th September, 1960.)

Financial assistance schemes for the acquisition or improvement of fishing craft by C. Beever and K. Ruud, Economics Branch, Fisheries Division. (17th October, 1960.)

Current Bibliography for Aquatic Sciences and Fisheries. Annual Indexes—1959: Prepared by Biology Branch, Fisheries Division. (9th December, 1960.)

Current Bibliography for Aquatic Sciences and Fisheries reprinted from Vol. 3, Part 1, 1960 (Explanation of coverage and arrangement): Compiled by Fisheries Biology Branch (9th January, 1961).

Trilingual Dictionary of Fisheries Technological Terms—Curing. Rome 1960 (23rd January, 1961).

Multilingual Vocabulary and Notation for Fishery Dynamics: Compiled by S. J. Holt, Chief, Biology Branch, Fisheries Division. Rome 1960 (21st March, 1961).

Indo-Pacific Fisheries Council

Proceedings 8th Session, Colombo, Ceylon, 6th–22nd December, 1958, Section II Technical Papers, I.P.F.C. Secretariat, F.A.O. Regional Office for Asia and the Far East, Bangkok 1960 (28th September, 1960).

Proceedings 8th Session, Colombo, Ceylon, 6th–22nd December, 1958, Section III Symposium on Fish Behaviour. Edited by G. L. Kesteven, D.Sc. I.P.F.C. Secretariat, F.A.O. Regional Office for Asia and the Far East, Bangkok 1960 (27th February, 1961).

Proceedings 9th Session, Karachi, Pakistan, 6th–23rd January, 1961. F.A.O. Regional Office for Asia and the Far East, Bangkok, Thailand (21st March, 1961).

Summary Report of the 9th Session, Karachi, Pakistan, 6th–23rd January, 1961. F.A.O. Regional Office for Asia and the Far East, Bangkok, Thailand (21st March, 1961).

International Commission for the North-West Atlantic Fisheries

Statistical Bulletin. Vol. 8 for the year 1958. Issued from the Headquarters of the Commission, Halifax, N.S., Canada 1960 (29th December, 1960).

Annual Proceedings. Vol. 10 for the year 1959/60. Issued from the Headquarters of the Commission, Halifax, N.S., Canada 1960 (10th April, 1961).

International Council for the Exploration of the Sea

Report of the 48th Meeting of the Council, 1960 (28th February, 1961).

International Union for Conservation of Nature and Natural Resources.

Bulletin Vol. IX Nos. 1-2, 1960 (17th August, 1960).

Proceedings 7th General Assembly, Warsaw, June, 1960 (27th March, 1960).

International North Pacific Fisheries Commission

Statistical Yearbook 1959 compiled by H. Kasahara and L. M. Kissack, Vancouver, Canada (11th April, 1961).

Annual Report for the year 1959, Vancouver, Canada (11th April, 1961).

Japan

Scientific Reports of the Whales Research Institute, No. 15: The Whales Research Institute, Tokyo, Japan. November 1960 (6th March, 1961).

National Institute of Oceanography

Discovery Reports, Vol. XXX, pp. 1-160. Ascidiacea by R. H. Millar. Cambridge University Press, 1960 (16th November, 1960).

Discovery Reports, Vol. XXX, pp. 161-300. The Distribution of Pelagic Polychaetes in the South Atlantic Ocean by Norman Tebble, British Museum (Natural History). Cambridge University Press, 1960 (16th November, 1960).

Discovery Reports, Vol. XXX, pp. 301-408, plates VII-XXVIII, Studies on Physalia Physalis (L) Part 1. Natural History and Morphology by A. K. Totton. Part 2. Behaviour and Histology by G. O. Mackie. Cambridge University Press, 1960 (7th November, 1960).

Discovery Reports, Vol. XXXI, pp. 1-122. Swimbladder Structure of Deep-Sea Fishes in Relation to their Systematics and Biology by N. B. Marshall. Cambridge University Press, 1960 (3rd February, 1961).

Discovery Reports, Vol. XXXI, pp. 123-298. The Benguela Current by T. John Hart and Ronald I. Currie. Cambridge University Press, 1960 (3rd February, 1961).

Discovery Reports, Vol. XXXI, pp. 299-326. The Appendages of the Halocyprididae by E. J. Iles (Department of Zoology, The University of Manchester). Cambridge University Press, 1961 (20th March, 1961).

National Oceanographic Council

Annual Report 1959/60. Cambridge University Press (1st February, 1961).

Netherlands

Aus dem Leben der Wale von E. J. Slijper, Zoologisches Laboratorium der Universitat Amsterdam (2nd December, 1960).

Het Nog steeds onopgeloste mysterie der Walvissen door Prof. Dr. E. J. Slijper (Werkgroep Walvisonderzoek T.N.O. Zoologisch Laboratorium der Universitat van Amsterdam) (2nd December, 1960).

Researches on the Period of Conception, Duration of Gestation and Growth of the Foetus in the Fin Whale, based on Data from International Whaling Statistics by C. Naaktgeboren, E. J. Slijper and W. L. van Utrecht. Netherlands Whale Research Group T.N.O., Zoological Laboratory University of Amsterdam. Reprinted from Norsk Hvalfangst-Tidende 1960, No. 3, 113-119. In Norwegian and English.

TABLE SHOWING OIL PRODUCTION ETC. 1950/51 — 1960/61

APPENDIX IX

Year (1)	ANTARCTIC PELAGIC WHALING						Land Stations South Georgia	Outside the Antarctic	TOTAL
	Baleen season	No. of floating factories	No. of catchers	No. of humpbacks taken (3)	No. of blue whale units (4)	Oil production in barrels (2)	Oil production in barrels (2)	Oil production in barrels (2)	Oil production in barrels (2)
1950/51	22 Dec. 50- 9 Mar. 51	19	239	1,630	16,416	2,152,498	151,192	654,182	2,957,872
1951/52	2 Jan. 52- 5 Mar. 52	20	268	1,546	16,008	2,334,805	144,375	429,670	2,908,850
1952/53	2 Jan. 53- 16 Mar. 53	16	230	945	14,867	1,998,094	120,003	426,663	2,544,760
1953/54	2 Jan. 54- 18 Mar. 54	17	206	594	15,456	2,100,884	184,836	576,688	2,862,408
1954/55	7 Jan. 55- 19 Mar. 55	19	233	493	15,324	2,061,789	180,766	522,090	2,764,645
1955/56	7 Jan. 56- 4 Mar. 56	19	257	1,432	14,874	2,134,808	172,363	605,189	2,912,360
1956/57	7 Jan. 57- 16 Mar. 57	20	225	679	14,745	2,098,854	148,068	678,977	2,925,899
1957/58	7 Jan. 58- 16 Mar. 58	20	237	396	14,850	2,146,206	171,432	717,456	3,035,094
1958/59	7 Jan. 59- 16 Mar. 59	20	235	2,394	15,220	2,050,241	102,418	731,331	2,883,990
1959/60	28 Dec. 59- 7 April 60	20	220	1,338	15,512	2,050,892	97,546	761,988	2,910,426
1960/61	28 Dec. 60- 7 April 61	21	252	718	16,433	2,122,709	109,796	724,707	2,957,212

1. The years indicated in this column cover not only the Antarctic Season, but also the catches outside the Antarctic in the second of the two years.

2. Barrels 170 (Barrel = 42 l. long ton = 1,016 kg.).

3. The limit on the number of baleen whales taken during the seasons 1949/50, 1950/51, 1951/52, 1952/53, and thereafter the catch was confined to certain days.

4. The blue whale unit catch limit was 15,000 until 1952/53, then it was reduced to 13,500 and then to 13,000 in 1955/56 and 14,500 in 1956/57. In 1957/58—1959/60, the limit governing the Antarctic pelagic whaling countries was 15,000 units. The limit was suspended in 1960/61.