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**Photographs taken during Japan's whale research  
in the Western North Pacific (JARPN II )  
in August and September 2000**

**Fisheries Agency  
Government of Japan**

## Outline of Japan's Whale Research in the Western North Pacific (JARPN II) in the Year 2000

### 1. OBJECTIVES

- 1.1 To study the feeding ecology of minke whales, Bryde's whales and sperm whales and their roles in the marine ecosystem (estimation of food consumption, prey preference, and development of ecosystem models).
- 1.2 To clarify the stock structure of minke whales, Bryde's whales and sperm whales.
- 1.3 To study the effects of the marine environment (pollutants, sea conditions) on whales and the marine ecosystem.

### 2. SAMPLES

Species	Number sampled in year 2000	(Maximum sample size)	(Population Abundance) Number of whales in the western north Pacific	Proportion of sample to abundance
Minke whale	40	100	25,000	0.16%
Bryde's whale	43	50	22,000	0.19%
Sperm whale	5	10	102,000	0.005%

Note: The number sampled is extremely low compared to the abundance of whales and does not have any negative effect on the resources.

### 3. RESEARCH AREA

From the waters off the north-east coast of Japan to the waters off the southernmost portion of the Kamchatka Peninsula (Research Areas 7, 8 and 9: see annex map).

### 4. RESEARCH PERIOD

From 27 July to 21 September, 2000 (duration: 55 days).

### 5. RESEARCH FLEET

One research mothership, 3 sampling vessels, 1 dedicated sighting vessel, 1 fisheries research vessel for prey studies.

### 6. MAIN RESEARCH ORGANIZATIONS

The Institute of Cetacean Research, the Far Seas Fisheries Research Institute.

### 7. PROGRAM CHARACTER

The program was initiated in 2000 as a feasibility study to be carried out for 2 years. Based on results from the two-year feasibility study, the content and scope of any following research program will be determined.



## **8. PRELIMINARY RESULTS OF THE 2000 RESEARCH**

### **8.1 Change in minke whale prey composition:**

The results of the previous whale research program in the northwestern Pacific showed that minke whales fed mainly on Pacific saury during midsummer. This year's research shows that minke whales prey on Japanese anchovy, common squid and walleye pollock, thus reconfirming that minke whales compete directly with fisheries and that their food habits are variate and flexible.

### **8.2 Competition for prey between Bryde's whale and skipjack tuna:**

Bryde's whale distribution areas coincided with the location of skipjack tuna fishing grounds. Since Bryde's whales feed on Japanese anchovy, which is also the prey of skipjack, the results suggest that Bryde's whale and skipjack tuna compete over anchovy as prey.

### **8.3 Sperm whale diet:**

The stomach of each sampled sperm whale contained a great amount of different squid species. The ongoing analysis of the stomach contents, including squid beaks, will contribute to clarify feeding ecology of sperm whales.

### **8.4 Frequent sighting of great baleen whales:**

A large number of great baleen whales sightings occurred in research Area 9. In particular, 25 individual blue whales were sighted, being the highest number of sightings so far. Also, fin whale and sei whale sightings in Area 9 were 16 individuals and 33 individuals respectively. This represented the highest rate of sightings so far for these species, thus suggesting the recovery of these populations in the research area.

## **9. LEGAL BASIS FOR THE WHALE RESEARCH PROGRAM**

The whale research programs being implemented by Japan in the northwestern Pacific and in the Antarctic Ocean are conducted in exercise of the rights granted by Article VIII, Paragraph 1 of the International Convention for the Regulation of Whaling, which is the legal instrument that created the International Whaling Commission (IWC). Both research programs are therefore perfectly legal activities under international law. Similarly, the sale of whale meat resulting from the research is an obligation stipulated by Paragraph 2 of Article VIII.

(Reference):

### **International Convention for the Regulation of Whaling**

#### **Article VIII**

1. *Notwithstanding anything contained in this Convention, any Contracting Government may grant to any of its nationals a special permit authorizing that national to kill, take, and treat whales for purposes of scientific research subject to such restrictions as to number and subject to such other conditions as the Contracting Government thinks fit, and the killing, taking, and treating of whales in accordance with the provisions of this Article shall be exempt from the operation of this Convention. Each Contracting Government shall report at once to the Commission all such authorizations which it has granted. Each Contracting Government may at any time revoke any such special permit which it has granted.*
2. *Any whales taken under these special permits shall so far as practicable be processed and the proceeds shall be dealt with in accordance with the directions issued by the Government by which the permit was granted.*

## Stomach Contents of (% in weight) Minke, Bryde's and Sperm Whales revealed by Japan's Whale Research in the Western North Pacific

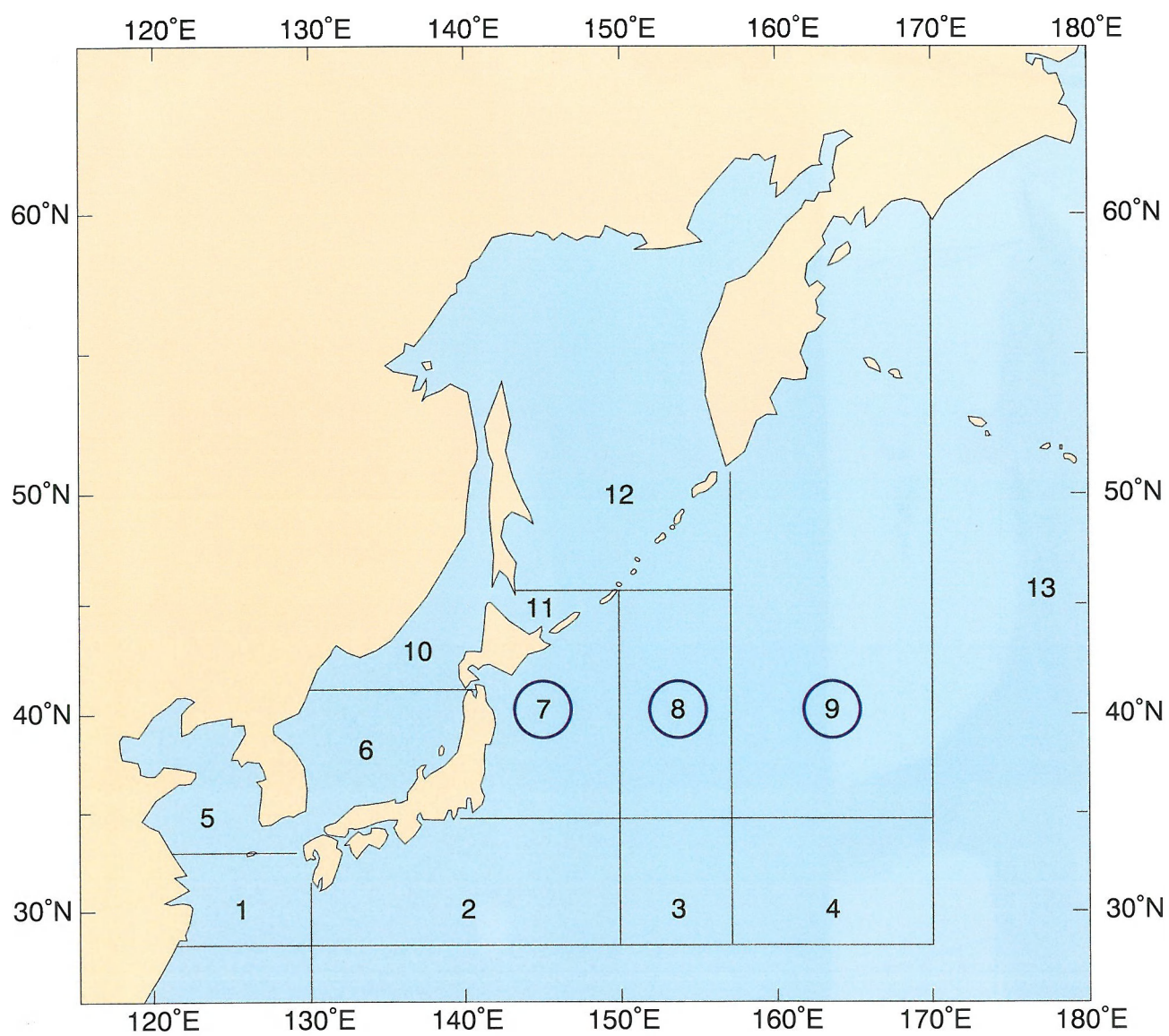
Species	Research periods	Sub-area 7	Sub-area 8	Sub-area 9
<b>Minke whale</b>	JARPNI May – Jun.	<b>Japanese anchovy</b> 92.1%	<b>Japanese anchovy</b> 94.3%	<b>Japanese anchovy</b> 96.4%
		Krill 1.2%	Pacific saury 2.9%	Pacific saury 1.8%
		Others 6.8%	Krill 2.9%	Krill 1.8%
	July – Sept.	<b>Pacific saury</b> 41.7%	<b>Pacific saury</b> 85.7%	<b>Pacific saury</b> 75.4%
		<b>Krill</b> 52.6%	Japanese anchovy 9.5%	<b>Japanese anchovy</b> 13.2%
		Others 5.7%	Others 4.8%	Others 11.4%
<b>Bryde's whale</b>	JARPNI Aug. – Sept.	<b>Japanese anchovy</b> 31.8%		<b>Japanese anchovy</b> 90.4%
		<b>Walleye pollack</b> 40.2%		Krill 7.8%
		<b>Japanese flying squid</b> 15.0%		Mackerel 1.0%
		Krill 6.9%		Pacific saury 0.8%
		Pacific saury 6.1%		
		<b>Japanese anchovy</b> 71.7%		
		<b>Krill</b> 28.3%		
		Others 0.1%		
<b>Sperm whale</b>	JARPNI Aug. – Sept.	<b>Squids(deep sea)</b> 100%		

JARPNI: Japanese Whale Research Program under Special Permit in the Western North Pacific (1994–1999)

JARPNI II: Japanese Whale Research Program under Special Permit in the Western North Pacific : Phase II (2000–)



## Research areas for JARPN II



*JARPN II 2000 was conducted in research areas 7, 8 and 9.*

## North Pacific Minke Whale (*Balaenoptera acutorostrata*)

(body length 7.17m/23.5ft; male; on deck)



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## Japanese Anchovy (*Engraulis japonicus*)

Stomach Content of Minke Whale (average body length 11cm/4.33in)



## Japanese Anchovy (*Engraulis japonicus*)

Stomach Content of Minke Whale (average body length 11cm/4.33in)





## Walleye Pollock (*Theragra chalcogramma*)

Stomach Content of Minke Whale (average body length 40cm/15.7in)



## Walleye Pollock (*Theragra chalcogramma*)

Stomach Content of Minke Whale (average body length 40cm/15.7in)





Japanese Common squid (*Todarodes pacificus*)  
(Stomach Content of Minke Whale; average mantle length 22cm/8.6in)



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Japanese Common squid (*Todarodes pacificus*)  
(Stomach Content of Minke Whale; average mantle length 22cm/8.6in)



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## Bryde's Whale (*Balaenoptera edeni*)

(body length 10.28m; male; on deck)





## Japanese Anchovy (*Engraulis japonicus*)

Stomach Content of Bryde's Whale (average body length 7cm/2.76in)



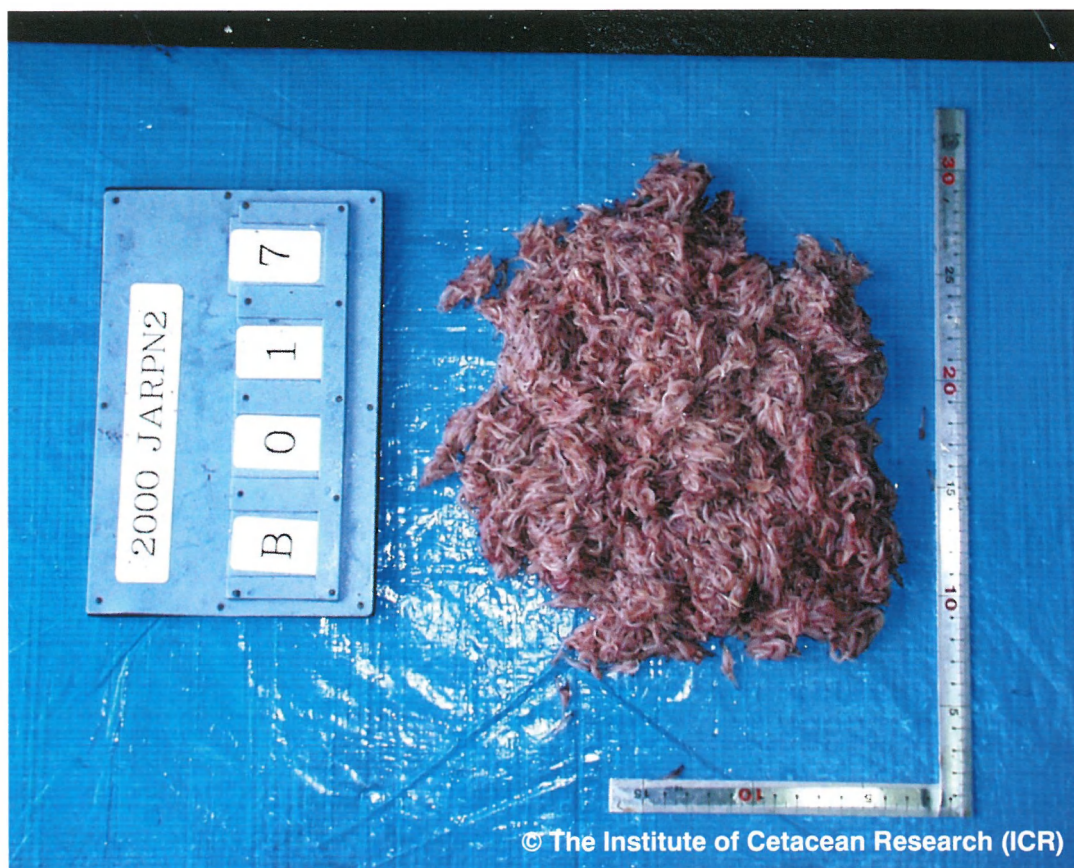
## Japanese Anchovy (*Engraulis japonicus*)

Stomach Content of Bryde's Whale (average body length 7cm/2.76in)





Krill (*Euphausia pacifica*)  
Stomach Content of Bryde's Whale



Krill (*Euphausia pacifica*)  
Stomach Content of Bryde's Whale





## Sperm Whale (*Physeter macrocephalus*)

(body length 8.17m/26.8ft; female; on deck)



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Deep sea squids (from left to right: *Gonatopsis borealis*, *Taonius pavo*,  
*Chroteuthis*[*Chirothauma*] *calyx*, *Histioteuthis dofleini*)  
Stomach Content of Sperm Whale



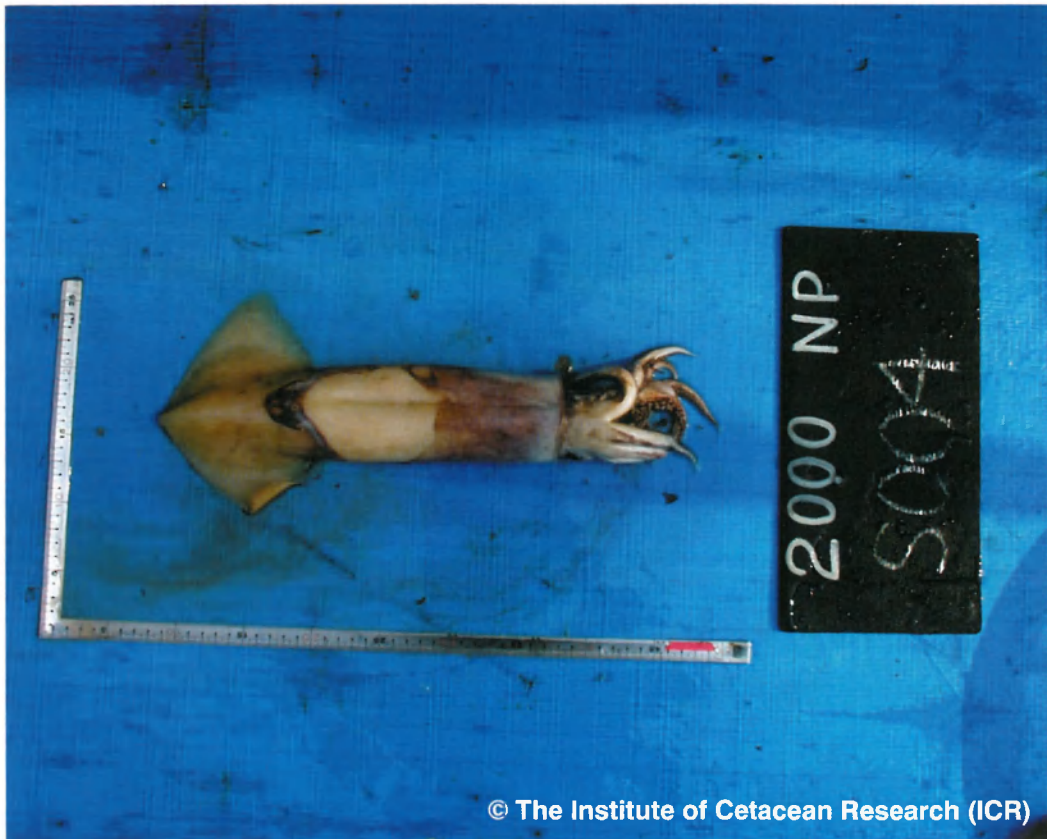
Deep sea squids (*Taningia danae*)  
Stomach Content of Sperm Whale





## Deep sea squids (*Gonatopsis borealis*)

Stomach Content of Sperm Whale



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## Deep sea squids (*Onychoteuthis borealijaponica*)

Stomach Content of Sperm Whale



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<http://www.whalesci.org> <http://www.icrwhale.org/08-A.htm>