

資料-5 討議議事録 (M/D)

(1) 基本設計調査現地調査

MINUTES OF DISCUSSIONS  
ON  
THE BASIC DESIGN STUDY  
ON  
THE PROJECT FOR OWIA FISH LANDING COMPLEX CONSTRUCTION  
IN  
SAINT VINCENT AND THE GRENADINES

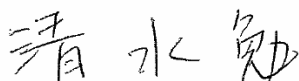
Based on the results of the Preliminary Study, the Government of Japan decided to conduct a Basic Design Study on the Project for Owia Fish Landing Complex Construction (hereinafter referred to as "the Project") and entrusted the study to the Japan International Cooperation Agency (hereinafter referred to as "JICA").

JICA sent to Saint Vincent and the Grenadines (hereinafter referred to as "St. Vincent") the Basic Design Study Team (hereinafter referred to as "the Team"), which is headed by Mr. Tsutomu Shimizu, Chief of Rural Development Team, Project Management Group III, Grant Aid Management Department, JICA, and is scheduled to stay in the country from February 22, 2006 to March 19, 2006.

The Team held discussions with the officials concerned of the Government of St. Vincent and conducted a field survey at the study area.

In the course of discussions and field survey, both parties confirmed the main items described on the attached sheets. The Team will proceed to further works and prepare the Basic Design Study Report.

Kingstown, March 1, 2006



Tsutomu Shimizu  
Leader  
Basic Design Study Team  
Japan International Cooperation Agency



Montgomery Daniel  
Minister  
Ministry of Agriculture, Forestry and Fisheries

paragraph 7-1, 7-2, 7-3 and 7-6 which St. Vincent side promised to submit, JICA will prepare the draft report in English and dispatch a mission in order to explain its contents.

6-3. In case that the content of the report is accepted in principle by the Government of St. Vincent, JICA will complete the final report and send it to the Government of St. Vincent.

## **7. Other Relevant Issues**

### **7-1. Operation and Management of the Facilities**

St. Vincent side explained that the operation and management of the proposed facilities will be transferred to the fishermen's cooperatives. St. Vincent side shall submit following documents to the Team by March 18, 2006.

- Plan of establishment of the fishermen's cooperatives (procedure, schedule of establishment, organization structure, articles, support by the Fisheries Division and schedule of transfer)

After the transfer of the operation and management of the proposed facilities to the fishermen's cooperatives or any other organizations, St. Vincent side shall assure following conditions.

- 1) The ownership of the facilities and equipment provided by the Japan's Grant Aid shall be retained by the Government of St. Vincent.
- 2) The Fisheries Division shall be responsible for repair and replacement of equipment on a major scale.
- 3) The proposed facilities shall be worked for the public benefit and not for particular enterprises.
- 4) Transparency of the management shall be assured.

### **7-2. Land Acquisition**

St. Vincent side indicated the area of the project site as shown in ANNEX-II (C-370 and C-331). St. Vincent side explained that C-331 belongs to the Government of St. Vincent and C-370 belongs to a single land owner. St. Vincent side also explained that enough budget for land acquisition of C-370 has been already secured. St. Vincent side shall accomplish the necessary procedure of land acquisition inclusive of obtaining agreement with land owners and compensation. St. Vincent side shall submit relevant certificates of land acquisition published by the concerned administrations to the Embassy of Japan in the Republic of Trinidad and Tobago at least by March 31, 2006.

### **7-3. Resettlement of Inhabitants**

St. Vincent side shall take necessary measures for obtaining agreement for resettlement of inhabitants and/or compensation. St. Vincent side shall report the result to the Embassy of Japan in the Republic of Trinidad and Tobago at least by April 30, 2006.

#### **7-4. Permissions necessary for the Project**

St. Vincent side shall obtain the Planning Permission from the Ministry of Finance and Planning and submit it to the Embassy of Japan in the Republic of Trinidad and Tobago within two weeks after receiving the draft basic design report.

#### **7-5. Major Undertakings by St. Vincent side**

- 1) St. Vincent side shall prepare temporary yard before the commencement of construction works.
- 2) St. Vincent side shall remove existing houses and trees at the project site before the commencement of construction works.
- 3) St. Vincent side shall provide boundary fence and gate around the project site.
- 4) St. Vincent side shall provide electricity, water supply, telephone line to the project site.

#### **7-6. Road Improvement**

The Team requested St. Vincent side to facilitate the road improvement project from Georgetown to Owia, because it is closely related to the Project. St. Vincent side shall submit the detailed plan of the road improvement project at least by March 18, 2006.

END

ANNEX-I: Items requested by St. Vincent side

ANNEX-II: Map of land to be secured

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## Items Requested by St. Vincent Side

	Components	Priority	REMARKS
1	Fishing Port Infrastructure		
	(1) Expansion of On shore Site by Reclamation and Backfill	A	The volume of backfilling should be minimized.
	(2) Revetment Work	A	Protection for slipway
	(3) Slipway Construction (including boat hauling yard and sea defense)	A	Including winch and light pole
	(4) Breakwater Construction including landing wharf (concrete blocks with rubble block)	A	Including beacon, light pole, fender, mooring pit, water supply pit and fuel supply pit.
2	On Shore Fisheries Facilities		
	(1) Gear Lockers	A	
	(2) Fisherman's Hall		
	- Office quarter	A	
	- Ice making machine with ice storage, Chilled room and Freezer room (with racks)	A	
	- Blast Freezer	C	
	- Processing Room	B	
	- Retail stalls	B	
	- Cooperative's Meeting Room	A	
	- Fishing Tackle Shop	B	
	- Mess Room	B	
	(3) Toilet / Shower	A	
	(4) Septic Tank and Drainage	A	
	(5) Fuel Station	A	
	(6) Fishnet Shed	B	
	(7) Pavement	B	Parking lot, Internal road, etc.
	(8) Water Tank	B	
	(9) Stand-by Generator	C	
3	Equipment		
	(1) VHF Transmitter Radio	C	
	(2) Heat Sealer	C	
	(3) Vacuum Packer	C	
	(4) Stainless Steel Sink	B	
	(5) Stainless Steel Tables	B	
	(6) Chest Freezer	C	
	(7) Insulated Fish Boxes	B	
	(8) Fish Trays	A	
	(9) Blast Freezer Stainless Trays	C	
	(10) Spray Washer	B	
	(11) Hoses	B	
	(12) Diving Air Tank Compressor	B	
	(13) Plastic Fish Boxes	B	
	(14) Platform Balances (stainless steel)	A	
	(15) Spring Scales (stainless steel)	A	
	(16) Hand Carts (stainless steel)	A	

\*The definition of priority;

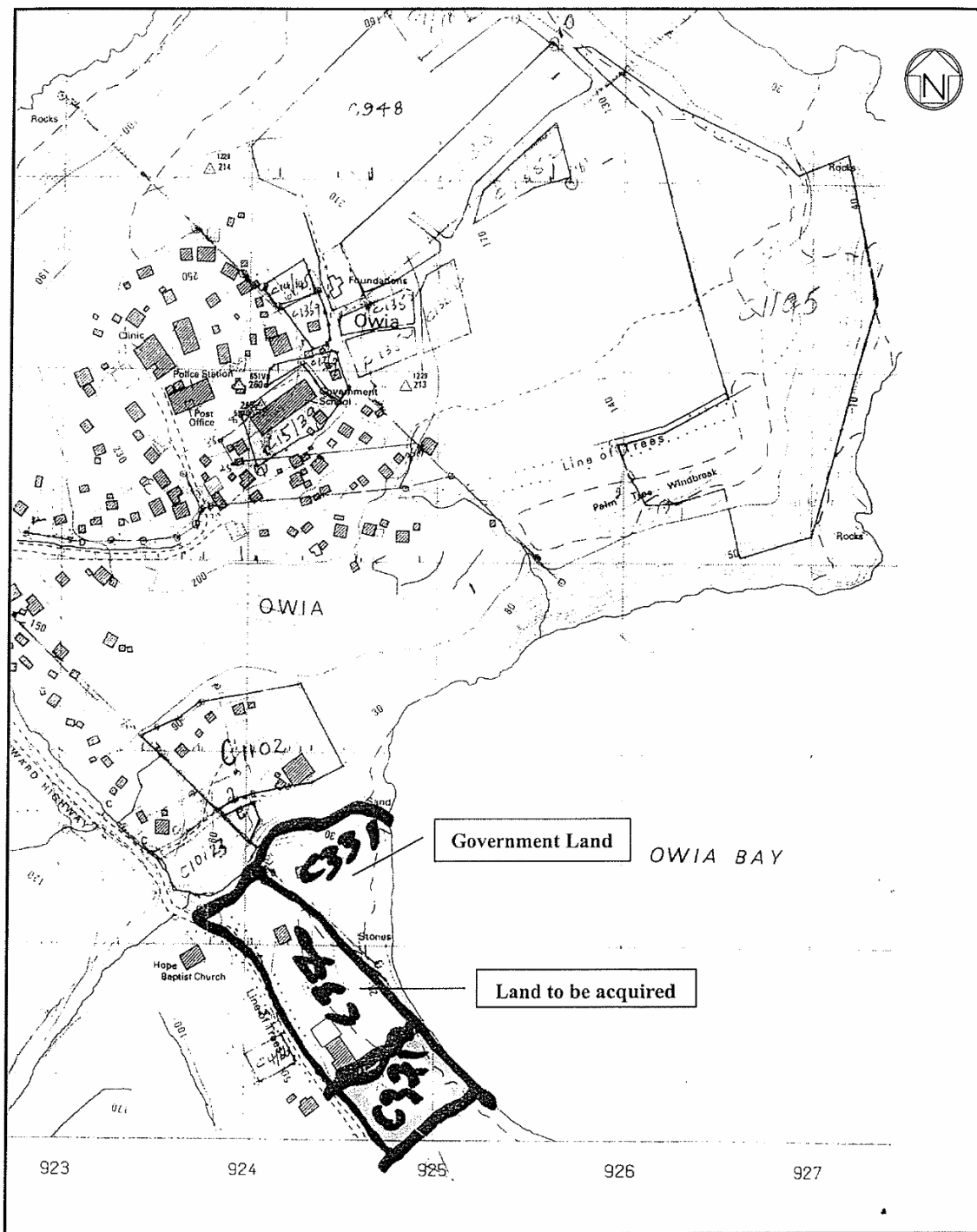
A : Necessary

B : Less necessary than "A"

C : Low necessary

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Map of land to be Secured

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MIUTES OF DISCUSSIONS  
THE BASIC STUDY  
ON  
THE PROJECT FOR  
OWIA FISH LANDING COMPLEX CONSTRUCTION  
IN  
SAINT VINCENT AND THE GRENADINES

Based on the results of the Preliminary Study, the Government of Japan decided to conduct a Basic Design Study on the Project for Owia Fish Landing Complex Construction (hereinafter referred to as "the Project") and entrusted the study to the Japan International Cooperation Agency (hereinafter referred to as "JICA").

JICA sent to Saint Vincent and the Grenadines (hereinafter referred to as "St. Vincent") the Basic Design Study Team (hereinafter referred to as "the Team"), which is headed by Mr. Tsutomu Shimizu, Chief of Rural Development Team, Project Management Group III, Grand Aid Management Department, JICA, and is scheduled to stay in the country from February 22, 2006 to March 19, 2006.

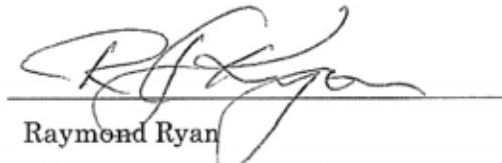
The Team held discussions with the officials concerned of the Government of St. Vincent and conducted a field survey at the study area.

In the course of discussions and field survey, both parties confirmed the items described on the attached sheets. The Team will proceed to further works and prepare the Basic Design Study Report.

Kingstown, March 17, 2006



Eiichi Matsuura  
Chief Consultant  
Basic Design Study Team  
Japan International Cooperation Agency



Raymond Ryan  
Chief Fisheries Officer (Ag.)  
Fisheries Division  
Ministry of Agriculture, Forestry & Fisheries

## ATTACHMENT

### 1. Relevant Issues

#### 1-1 Operation and Management of the Facilities

The Team explained the schematic ideas of the fishermen's cooperatives as the body of operation and management for the references. St. Vincent side submit the plan of establishment of the fishermen's cooperatives which is include procedure, schedule of establishment, organization structure, articles, and schedule of transfer. St. Vincent side also explained that the Fisheries Division in collaboration with National Fisheries Marketing Limited will operate the facilities before transfer to the fishermen's cooperatives. (See Annex-1)

#### 1-2 Land Acquisition

St. Vincent side explained that the meeting with the land-owners of the project site will held on March 20, 2006. The Team requested that the relevant certificates of land acquisition published by the concerned administrations be submitted to the Embassy of Japan in the Republic of Trinidad and Tobago at least by March 31, 2006.

#### 1-3 Resettlement of inhabitants

The Team explained that the results of field survey revealed that four families or more excluding the family of land-owner live on land at the project site. St. Vincent side was requested to take the necessary measures to obtain agreement for resettlement of inhabitants and/or compensation. The St. Vincent side is also requested to report the result to the Embassy of Japan in the Republic of Trinidad and Tobago at least by April 30, 2006.

### 2. Major Undertakings by St. Vincent side

#### 2-1 Temporary yard

The Team explained that the most suitable site for the temporary yard is the beach and adjoining land south of Layou Bay. St. Vincent side will examine the probabilities of preparing the beach and adjoining land as the temporary yard.



## **2-2 Site clearance of the project site**

St. Vincent side gave confirmation that the existing houses and trees will be removed from the project site before the commencement of construction works.

## **2-3 Electricity, water supply, telephone line to the project site**

The Team confirmed that it is easy to provide electricity, water supply and telephone line to the project site by the concerned officials and organizations. St. Vincent side shall provide electricity, water supply and telephone line to the project site.

## **3. Other relevant issues**

### **3-1 Road Improvement**

The Team confirmed that the schedule of the road improvement project from Georgetown to Fancy through Owia by discussion with Ministry of Transportation, Works and Housing. The Team requested drawings of detailed design at the project site for examination of set back. The officials of Ministry of Transportation, Works and Housing will provide the drawings of the improvement plan (Georgetown to Fancy) close to the project site by the request of the Team. St. Vincent side shall send the drawings provided to the head office of ECOH Corporation by FEDEX.

### **3-2. Soil Investigation**

Soil Investigation shall be executed by GEOTEC in the Republic of Trinidad and Tobago. The soil investigation will be executed from March 25, 2006 due to the delayed shipping of the bore hole rigs and barge by GEOTEC. The Team requests to take the photographs of working at the site and send it to the head office of ECOH Corporation.

### **3-3. Type of Ice Making Machine**

St. Vincent side requested that the flake ice will be produced for the Project. The Team accepted to examine the flake ice as the type of Ice Making Machine for the Project.





# Proposed Plan and Tentative Schedule for the Establishment of the North Windward Fishers' Cooperative

## 1.1. Geographical Area of Fishers' Cooperative

The geographical area of coverage is expected to be Owia, Fancy, and Sandy Bay. However, membership from other windward (east coast) communities such as Georgetown and Biabou could be accommodated.

## 1.2 Goal

To provide consistent opportunities, benefits and services to our members and the wider north windward community through the efficient management of resources.

## 1.3 Aim & Objective of New Fishers' Cooperative (Group will modify as necessary)

- To ensure available markets for members at the local, regional and international levels.
- To provide or facilitate training for members in the following areas:
  - (1) Cooperative Planning, management and development.
  - (2) Basic book keeping and business planning and management.
  - (3) Safety at sea and navigation.
  - (4) Gear and methods in particular, modern fishing techniques.
  - (5) Boat, engine and gear maintenance and repair.
  - (6) Customer service.
  - (7) Basic educational skills.
  - (8) Fish handling and processing.
- To provide or facilitate short and long term financial benefits for members and their families including:
  - (1) Pension schemes.
  - (2) Compulsory savings.
  - (3) Boat and life insurance.
  - (4) Scholarship fund.
  - (5) Rebate schemes
- To foster beneficial linkages with other stakeholder groups.
- To aid in the development of stakeholders and the community in general, socially, culturally, and economically.

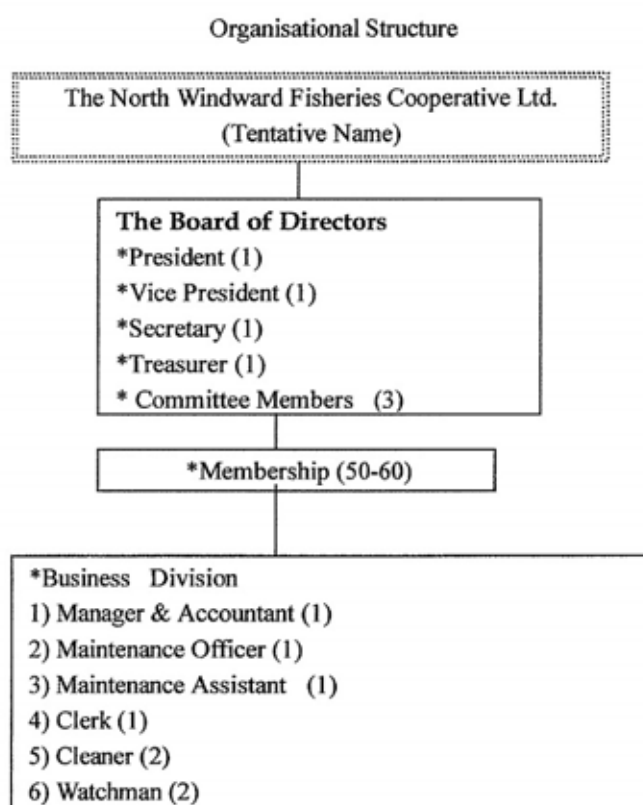
## 1.4 Estimated membership

The estimated membership is 50-60 individuals/stakeholders at the initial stage of establishment of the Fishers' Cooperative (refer to Figure 1). It is anticipated that membership will be comprised of boat owners, full-time and part-time fishermen and other stakeholders interested in the formation of a Fishers' Cooperative and the general development of North windward area. The aforementioned estimate total membership is based on a recent survey conducted by the Fisheries Division in collaboration with the Basic Design Team.

## 1.5 Name & Organization of Fishery Coop

Members who participate in future workshops convened for the purpose of establishing a Fishers' Cooperative will decide on the name and structure of organization. However, at this stage, the name and structure of the organization is proposed as follows.

Figure 1. Proposed Organisational Structure for the North Windward Fishers' Cooperative.



Remarks \* The Number of activities and staff will be decided by Business plan to be implemented after registration of the Cooperative.

## **1.6 Business of the North Windward Cooperative**

The Fishers' Cooperative will provide the following Services;

### **A. Economic Activities**

1. Fuel supply (LPG, Gas & diesel)
2. Lubricant sales.
3. Ice supply.
4. Fishing gear sales (Tackle shop operation).
5. Rental of lockers and retail stalls.
6. Cold storage.
7. Landing toll collection.
8. Employment opportunities.
9. Filling of SCUBA tanks (air compressor).
10. Fish purchase and sales.

### **B. Credit Schemes**

1. Credit for members (Fuel, gear, etc)

### **C. Social Activities**

1. Pension schemes.
2. Compulsory savings.
3. Boat and life insurance.
4. Scholarship fund.
5. Rebate schemes.
6. Training for members (Fishing technique & others).

## **1.7 Financial analysis (Financial scheme and balance sheet)**

The Cooperative will develop a systematic projection of the expected actions of management in the form of schedules, budgets and financial statements. In this process, past physical statistics, financial ratios, relationship and fund flow as well as expected economic conditions, policy decisions and future activities would be combined and arranged into a working plan for the desired period. *(This financial analysis will be included in the business plan to be developed by the cooperative. The initial capital outlay by members will have a bearing the financial analysis).*

## **1.8 Tentative Schedule of Establishment of Cooperative.**

It is anticipated that a new Fishers' Cooperative will be established by the following process and schedule. This schedule is designed to ensure that the Cooperative is established and

registered prior to the completion of Fishing Centre. However, if any difficulties are encountered which delays the establishment and registration of the Fishers' Cooperative, the Fisheries Division in collaboration with the Government owned Company, The National Fisheries marketing Limited (NFML) will manage the Owia Facility. The Fisheries Division and NFML will hand over the management of Fisheries Centre to the new fisher's cooperative following the completion of cooperative's registration.

**\*June ~ October 2006**

- Workshops held by Fisheries and Cooperative Divisions to provide guidance and training to fish-folk and other stakeholders in the formation of cooperatives.
- A Steering Committee & Business Planning Team selected.
- Business Planning team develop draft business plan.
- Steering Committee prepares draft byelaws.

**\* November 2006~June 2007**

- Establishment of Board of Directors (Election of president & board members).
- Business Plan discussed, finalised and approved by members.
- Business Plan submitted to cooperative for review.
- Byelaws discussed, finalised and approved by members.
- Byelaws submitted to Cooperative Division for review (Cooperative act).

**\*July-December.2007**

- Application form for registration along with byelaws and business plan submitted to Cooperative Division.
- Recruitment of staff.
- **Preparation of Tentative office or small store for further Business Training by Cooperative Division.**
- Start business on small scale (Pilot project) for on the job training by Cooperative Division.
- Refine Business plan with assistance from Fisheries Division and Cooperative Division.
- Submit application for registration to Cooperative Division.

**\*Jan-June 2008.**

- Approval of registration by Cooperative Division.
- Start of full-scale business operation according to business model (plan).

(2) 基本設計概要書説明

MINUTES OF DISCUSSIONS  
ON BASIC DESIGN STUDY ON  
THE PROJECT FOR OWIA FISH LANDING COMPLEX CONSTRUCTION  
IN SAINT VINCENT AND THE GRENADINES  
(EXPLANATION ON DRAFT REPORT)

In February 2006, the Japan International Cooperation Agency (hereinafter referred to as "JICA") dispatched a Basic Design Study Team on The Project for Owia Fish Landing Complex Construction (hereinafter referred to as "the Project") to Saint Vincent and the Grenadines (hereinafter referred to as "St. Vincent"), and through discussion, field survey, and technical examination of its results in Japan, JICA prepared a draft report of the study.

In order to explain and to consult St. Vincent on the components of the draft report, JICA sent to St. Vincent the Draft Report Explanation Team (hereinafter referred to as "the Team"), which is headed by Mr. Naoki Kamijo, Deputy Resident Representative, JICA Mexico Office, from 6<sup>th</sup> September 2006 to 13<sup>th</sup> September 2006.

As a result of discussions, both parties confirmed the main items described on the attached sheets.

Kingstown, 13<sup>th</sup> September, 2006

上條直樹

Mr. Naoki Kamijo  
Leader  
Draft Report Explanation Team  
Japan International Cooperation Agency  
(JICA)



Hon. Mr. Montgomery Daniel  
Minister  
Ministry of Agriculture, Forestry and Fisheries  
Saint Vincent and the Grenadines

## ATTACHMENT

### 1. Components of the Draft Report

The Government of St. Vincent agreed and accepted in principle the components of the draft report explained by the Team including obligations of the recipient country which are mentioned in Chapter 3 of the draft report.

### 2. Japan's Grant Aid scheme

St. Vincent side understands the Japan's Grant Aid Scheme and the necessary measures to be taken by the Government of St. Vincent as explained by the Team and described in Annex- 2 of the Minutes of Discussions signed by St. Vincent side and the Preliminary Study Team on 16<sup>th</sup> August, 2005.

### 3. Schedule of the Study

JICA will complete the final report in accordance with the confirmed items and send it to the Government of St. Vincent by November 2006.

### 4. Other relevant issues

#### (1) Land acquisition and Resettlement of Inhabitant

St. Vincent side promised to submit the approval of its Cabinet by 25<sup>th</sup> September 2006 to the Embassy of Japan in the Republic of Trinidad and Tobago. St. Vincent side also promised to complete the compensation by the end of October, 2006 and the resettlement of inhabitants by the end of December, 2006 and to report the result to the Embassy of Japan in the Republic of Trinidad and Tobago. Both side confirmed that site clearance should be completed (without any legal and physical encumbrances) before the commencement of the construction work, by the end of March, 2007.

#### (2) Operation and Management of the Facilities

Both sides confirmed the fishermen's cooperative will be established in order to operate and maintain the proposed facilities. St. Vincent side promised that Fisheries Division, Ministry of Agriculture, Forestry and Fisheries, in collaboration with the Cooperatives Division, Ministry of National Mobilization, Social Development and Local Government will facilitate the establishment of the cooperative as outlined in ANNEX I.

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Both sides confirmed that Ministry of Agriculture, Forestry and Fisheries takes full responsibility for operating the facilities until the establishment of the fishermen's cooperative. The Fisheries Division together with Cooperatives Division, will continue to provide technical assistance to the fishermen's cooperative to facilitate the enhancement of its sustainable development.

St. Vincent side also promised to maintain and use equipment purchased under Grant Aid, especially cold storage, chilled storage and ice storage, effectively under proper management plan.

### (3) Planning Permission of the Project

St. Vincent side promised to take necessary measures to obtain planning permission from the Ministry of Housing, Informal Human Settlement, Land, Surveys and Physical Planning based on the draft report by 9<sup>th</sup> October, 2006. After obtaining the permission, St. Vincent side shall report to the Embassy of Japan in the Republic of Trinidad and Tobago by 13<sup>th</sup> October, 2006.

### (4) Road Improvement

St. Vincent side explained the progress of the road improvement project between Georgetown to Owia. St. Vincent side also confirmed the importance of smooth implementation of the Project and promised to keep in close collaboration with the contractor for the road improvement project.

### (5) Modification of the Floor Plan for the Fisheries Center Building

St. Vincent side strongly requested the modifications of the floor plan, outlined in Fig 2-3 (10) of the draft report. These modifications are as follows;

- 1) installation of vestibule space for the toilet, and
- 2) installation of hand wash basin in the fish handling area.
- 3) relocation of reception window of the ice sales to the corridor side from original

Such modifications are necessary to ensure good hygiene standards as outlined in ANNEX II. The Team will convey this request from St. Vincent side to JICA Headquarter.

### (6) Implementation Committee

Both sides agreed that a committee will be established to manage the smooth

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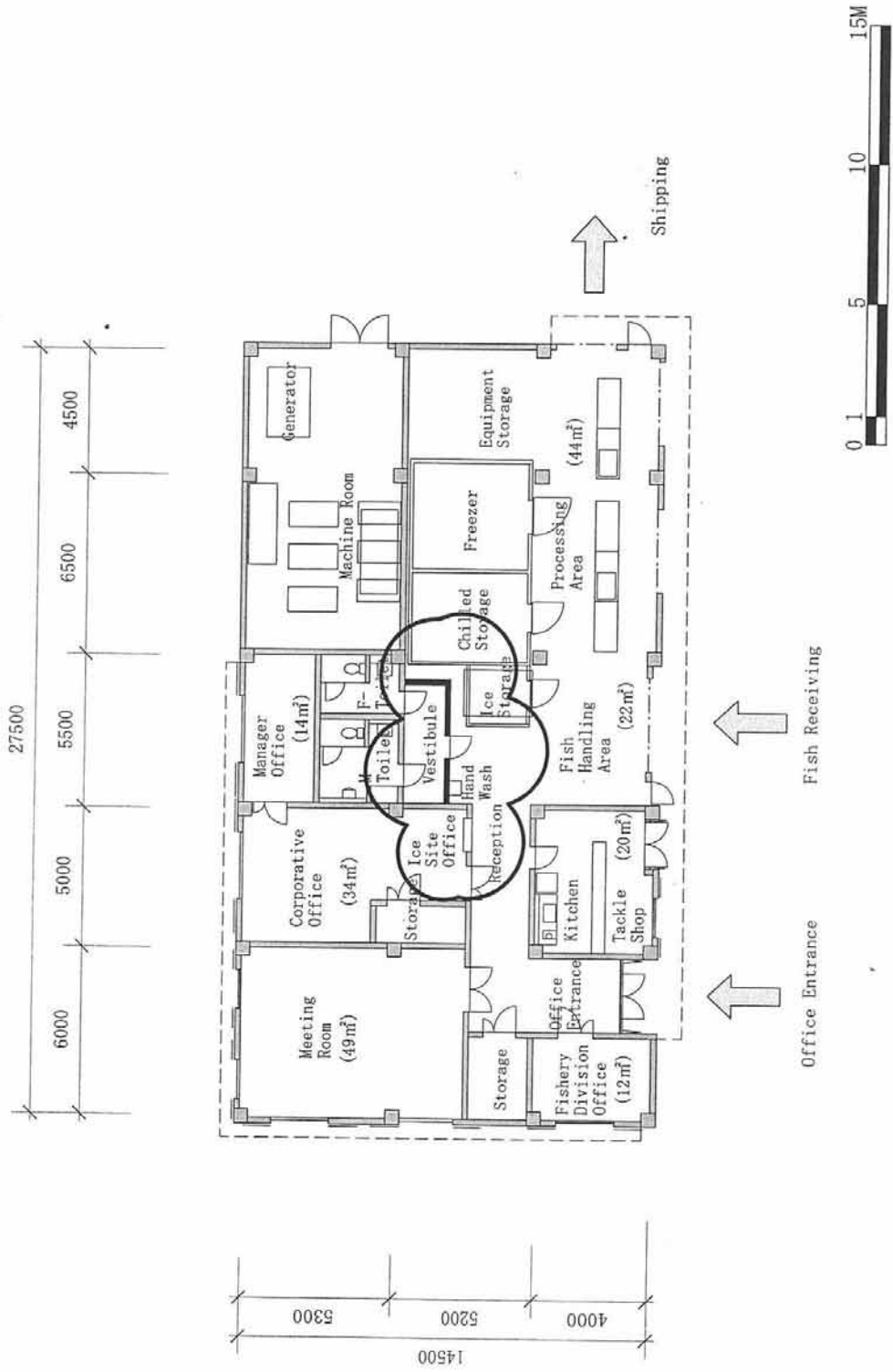


Fig. 2-3. (10) Floor Plan for the Fishery Center Building

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implementation of the Project. The committee may include representatives from Custom and Excise, Port Authority, Maritime Administration, St. Vincent Coast Guard Services, Ministry of Finance and Planning, Ministry of Transport and Works or any other necessary institutions.

(7) Control and monitoring of fish export

St. Vincent side will take necessary measures to control and monitor the export of the fish by trading vessels.

ANNEX I: Proposed Plan and Tentative Schedule for the Establishment of the North Windward Fisher's Cooperative

ANNEX II: Floor Plan for the Fisheries Center Building

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**Proposed Plan and Tentative Schedule for the Establishment of the North Windward  
Fisher's Cooperative**

**1.1 Geographical Area of Fishers' Cooperative**

The geographical area of coverage is expected to be Owia, Fancy and Sandy Bay. However, membership from other windward (east coast) communities such as Georgetown and Biabou could be accommodated.

**1.2 Goal**

To provide consistent opportunities, benefits and services to our members and the wider north windward community through the efficient management of resources.

**1.3 Aim & Objective of New Fishers' Cooperative (Group will modify as necessary)**

- To ensure available markets for members at the local, regional and international levels.
- To provide or facilitate training from members in the following areas:
  - (1) Cooperative Planning, management and development.
  - (2) Basic book keeping and business planning and management.
  - (3) Safety at sea and navigation.
  - (4) Gear and methods in particular, modern fishing techniques.
  - (5) Boat, engine and gear maintenance and repair.
  - (6) Customer service.
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- To provide or facilitate short and long term financial benefits for members and their families including:
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- To foster beneficial linkages with other stakeholder groups.
- To aid in the development of stakeholders and the community in general, socially, culturally, and economically.

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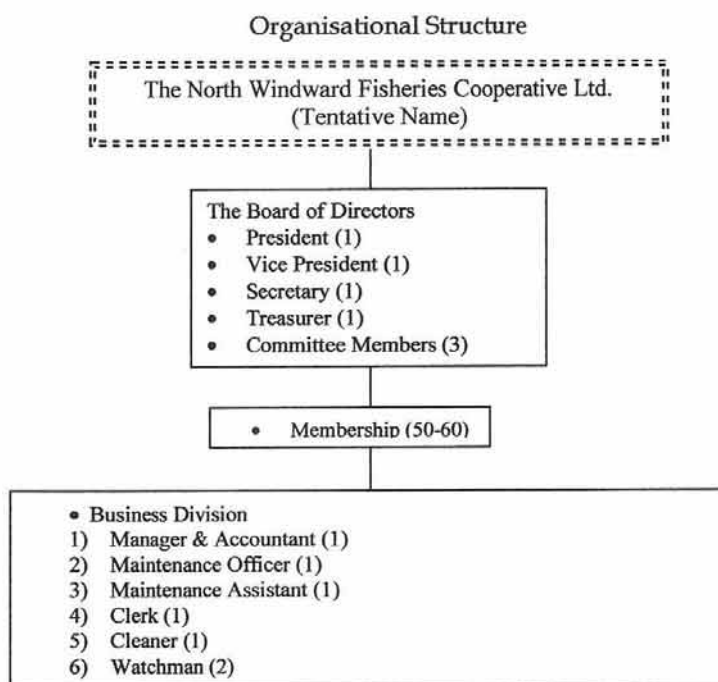
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#### 1.5 Name & Organisation of Fishery Coop

Members who participate in future workshops convened for the purpose of establishing a Fishers' Cooperative will decide on the name and structure of organization. However, at this stage, the name and structure of the organization is proposed as follows:

Figure 1. Proposed Organisational Structure for the North Windward Fishers' Cooperative.



*M.K*

*M.K*

Remarks \* The Number of activities and staff will be decided by Business plan to be implemented after registration of the Cooperative.

#### 1.6 Business of the North Windward Cooperative

The Fishers' Cooperative will provide the following services;

##### A. Economic Activities

1. Fuel supply (LPG, Gas & diesel)
2. Lubricant sales.
3. Ice supply.
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5. Rental of lockers and retail stalls.
6. Cold storage.
7. Landing toll collection.
8. Employment opportunities.
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##### B. Credit Schemes

1. Credit for members (Fuel, gear, etc)

##### C. Social Activities

1. Pension schemes.
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#### 1.8 Tentative Schedule of Establishment of Cooperative.

It is anticipated that a new Fishers' Cooperative will be established by the following process and schedule. This schedule is designed to ensure that the Cooperative is established and registered prior to the completion of Fishing Centre. However, if

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any difficulties are encountered which delays the establishment and registration of the Fishers' Cooperative, the Fisheries Division in collaboration with the Government owned Company, The National Fisheries Marketing Limited (NFML) will manage the Owia Facility. The Fisheries Division and NFML will hand over the management of Fisheries Centre to the new fisher's cooperative following the completion of cooperative's registration.

December 2006 – April 2007

- Workshops held by Fisheries and Cooperative Divisions to provide guidance and training to fish-folk and other stakeholders in the formation of cooperatives.
- A Steering Committee & Business Planning Team selected.
- Business Planning team develop draft business plan.
- Steering Committee prepares draft byelaws.

May – December 2007

- Establishment of Board of Directors (Election of president & board members).
- Business Plan discussed, finalized and approved by members.
- Business Plan submitted to cooperative for review.
- Byelaws discussed, finalized and approved by members.
- Byelaws submitted to Cooperative Division for review (Cooperative act).

January – June 2008

- Application prepared and submitted for registration along with byelaws and business plan submitted to Cooperative Division.
- Recruitment of staff
- **Preparation of Tentative office or small store for further Business Training by Cooperative Division.**
- Start business on small scale (Pilot project) for on the job training by Cooperative Division.
- Refine Business plan with assistance from Fisheries Division and Cooperative Division.

July – December 2008

- Approval of registration by Cooperative Division.
- Start of full-scale operation according to business model (plan).

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資料-6 事業事前計画表（基本設計時）

<p>1. 案件名</p>
<p>セントビンセント国 オウイア水産センター整備計画</p>
<p>2. 要請の背景（協力の必要性・位置づけ）</p>
<p>(1) セントビンセントの主な産業は農業であるが、耕地面積が国土の 10%程度と限られていること、主要輸出先であるイギリスの優遇制度が数年以内で廃止されることから、農業の代替産業として観光業や漁業の育成が国家の主要な課題となっている。国家開発 3 カ年計画では、従来のバナナ中心の農業から脱却し、生産物の多様性を図る観点から豊富な未利用資源が存在する水産業を重要な開発部門として位置づけている。</p> <p>(2) 水産開発計画においては、漁獲後の加工過程の改善および品質向上を通じた総生産量の拡大と生産性の向上、水産物の品質向上を通じた零細漁業の育成の促進、生産物輸出基準の導入を通じた輸入代替品生産の増加および輸出振興の促進、水産局を含む行政能力の向上を基本政策として、先進国の支援を受けつつ開発を実施することとしている。</p> <p>(3) 我が国とセントビンセントは友好関係を有しており、同国のカリブ海地域での地理的、政治経済的な重要性に鑑み、セントビンセントはカリブ海地域における我が国援助の重点国の一つに位置づけられている。</p> <p>(4) 漁業セクターについては、零細漁業を支援するため全国 11 ヶ所における水産センターの整備が計画され、8 ヶ所は実施済みである。残る 3 ヶ所のうち、セントビンセント島内 3 位の水揚げ地であるオウイアは優良な漁場に近接するという有為な条件にもあるにもかかわらず、厳しい地形及び海象条件、漁港や関連施設が未整備であるためによる漁船の着岸・係留が困難でかつ漁民の作業の安全性が低く、水揚げ後の損失が大きいなど課題を抱えている。</p> <p>(5) 以上のような背景から防波堤・斜路等の建設に係る無償資金協力を我が国に要請してきた。</p>
<p>3. プロジェクト全体計画概要</p>
<p>(1) プロジェクト全体計画の目標（裨益対象の範囲及び規模）</p> <p>1) 目標 漁業の安全性が向上するとともに出漁機会が増加し、当該地区の漁獲量が増大する。</p> <p>2) 裨益対象の範囲及び規模 裨益対象の範囲：セントビンセント島の北東部（ノースウィンドワード地区）に位置するオウイア村、ファンシー村、サンディベイ村及び対象地での鮮魚の水揚げによる「セ」国零細漁業及び国民 裨益対象の規模：11 万 7534 人（2005 年推計）</p> <p>(2) プロジェクト全体計画の成果 斜路、防波護岸、防波堤、水産センター棟、漁具倉庫棟が建設される。</p> <p>(3) プロジェクト全体計画の主要活動</p> <p>1) 水産局の監督・指導の基にプロジェクト運営のための漁業組合設立のための管理委員会を設置し、漁業組合設立から移管までの支援を実施する。</p> <p>2) 第 1 期工事で、埋立・敷地造成、斜路、防波護岸を整備する。</p> <p>3) 第 2 期工事で、防波堤、石積護岸、港内道路、水産センター棟、漁具倉庫棟、魚網干場、浄</p>

化槽、給油設備を整備し、流通用機材、荷捌き場関連機材、冷凍・冷蔵用機材、給油・給水用資材を調達する。

- 4) 施設の管理・運営が水産局から漁業組合へ移管し、上記施設・機材を使用して活動を実施する。

(4) 投入（インプット）

- 1) 日本側=オウイア水産センター施設及び機材： 無償資金協力 14.3 億円

- 2) 相手国側：

必要な人員配置

環境社会配慮：用地取得・住民移転：0.13 億円

相手国負担事項（電気・水道の引き込み、事務機器・家具等）：0.06 億円

施設 / 機材の運営・維持管理に係る経費：運営維持管理費（年間）約 0.54 億円

(5) 実施体制

実施機関及び主管官庁：「セ」国 農林・水産省 水産局

#### 4．無償資金協力案件の内容

(1) サイト

「セ」国 ノースウィンドワード地区 オウイア

(2) 概要

斜路、防波護岸、防波堤、水産センター棟、漁具倉庫棟の建設

(3) 相手国負担事項

- 1) 用地取得、住民移転
- 2) 工事用仮設ヤードの確保
- 3) 計画サイト内の樹木伐採、廃屋および障害物撤去
- 4) 建設残土の投棄場所の確保
- 5) 電気・水道・電話の引き込み、事務機器・家具等の調達

(4) 概算事業費

概算事業費 14.36 億円（日本側負担 14.3 億円、「セ」国側負担 0.06 億円）

(5) 工期

詳細設計・入札期間を含め約 21 ヶ月（予定）

(6) 貧困、ジェンダー、環境及び社会面の配慮

環境面の配慮として、汀線付近の土地・海岸地形の改変を最小限にとどめた計画配置とする。

#### 5．外部要因リスク（プロジェクト全体計画の目標の達成に関するもの）

設計対象波を上回る異常波浪や地震による津波の発生

## 6. 過去の類似案件からの教訓の活用

特になし。

## 7. プロジェクト全体計画の事後評価に係る提案

### (1) プロジェクト全体計画の目標達成を示す成果指標

成果指標		プロジェクト実施前	2008年以降
1) 水揚作業の効率化	水揚げ時間（平均）	2時間	1時間
	出漁準備時間（平均）	2時間	1時間
	1隻あたり準備・水揚げに要する労働力	6人	2人
2) 水揚げ量（年間）		85トン/年	増加する
3) 漁船損害件数	木造船の補修回数	毎陸揚時	減少する

### (2) その他成果指標

特になし

### (3) 評価のタイミング

事業終了時の事後評価（漁業組合への移管後）＜2008年＞



資料-7 入手収集資料リスト

地域	中南米地域	調査団名 又は 専 門 家 氏 名	オウイア水産センター整備計画調査	調 査 の 種 類 又は指導科目	水産無償	担当 部署	無償資金協力部 業務第三グループ
国名	セントビンセントおよ びグレナディーン諸島	配属機関名	農林水産省	現地調査期間 又は派遣期間	2006年2月21日～3月22日 2006年9月05日～9月16日		

番号	資料の名称	発行機関	形態*
1	Population and Housing Census 2005	Ministry of Finance and Development	コピー
2	Windword Highway Rehabilitation Project (Drawings) February 2005	Ministry of Transport, Works & Housing	図面
3	オウイアの地籍図	Fisheries Division	図面
4	Meteorological Data Rabacca Field Station	St. Vincent Co-operative Arrowroot Association	CD-R
5			
6			
7			

\* 図書、地図、ビデオテープ、電子媒体等

## 資料-8 参考資料

### 資料 8-1 反射波の影響解析

漁港建設に伴い生ずる反射波の影響度について以下のように解析した。

#### (1) 解析方法

対象波浪は、通常時波浪の推算結果より求めており、未超過出現率が 95% 程度の波浪である。解析範囲については、漁港設置地点周辺の東西・南北ともに約 400m の海域とする。計算範囲の沖側境界での波浪諸元は、波浪変形計算結果より以下のように設定した。

表・資 8-1.(1) 反射波解析の波浪条件 (入射波諸元、水深 25m)

沖波諸元		屈折係数	入射波諸元	
波高 (H <sub>0</sub> )	2.5m		0.66	入射波高 (H)
周期 (T)	8s	周期 (T)		8 s
波向	E	入射波向		N72°E
方向集中度 (S <sub>max</sub> )	10	方向集中度 (S <sub>max</sub> )		25

反射波の解析は、上記の波浪諸元について現況および漁港建設後の波浪条件を、エネルギー平衡方程式を解く方法を用いた波浪変形計算によって計算し、両者の比較によって、反射波の規模やその影響範囲を求めたものである。具体的な計算方法を以下に示す。

#### 現況における波浪条件の検討

現況 (漁港設置前) について波浪変形計算を行う。漁港建設後の波浪条件と比較する基礎資料となるものである。

#### 漁港建設後の入射波の変形計算

漁港設置後について、1)と同様の波浪変形計算を行う。この計算結果から、漁港施設前面の入射波の諸元 (波高比、入射波向) を求める。

#### 反射波の解析

入射波の解析と同様の方法により、反射波の解析を行う。防波堤や護岸の前面への入射波に対し、計算格子点毎に、反射率を考慮した反射波の波高比および構造物法線、入射波向を考慮した反射波の進行方向を設定する。これらの反射波の変形計算を、エネルギー平衡方程式を解く方法を用いて計算する。

#### 波浪の合成

上記の入射波と反射波をエネルギー的に合成して、漁港建設後の波浪条件を求める。

#### 波浪の比較

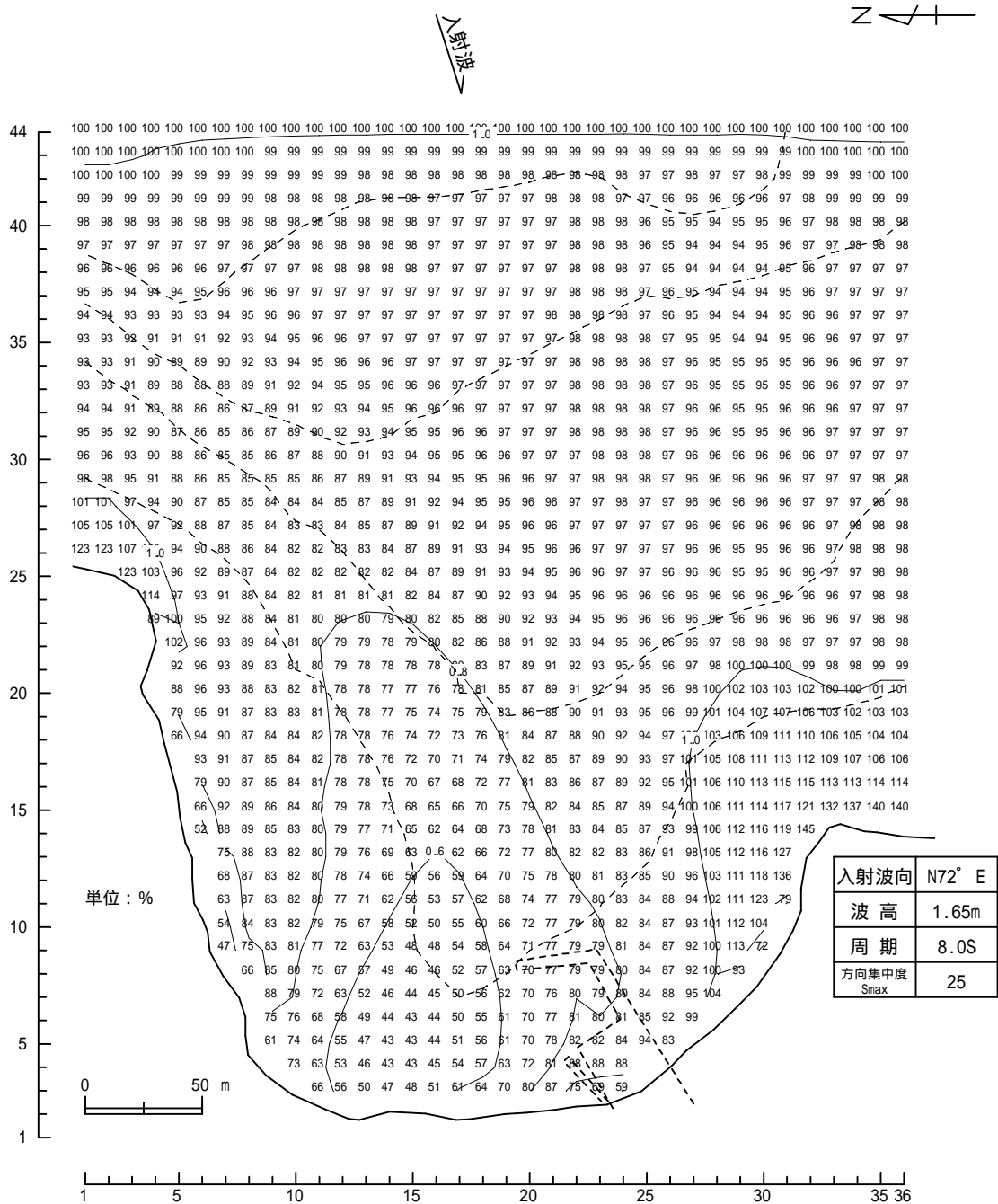
現況 1)、漁港建設後 4)の比較検討により、反射波の規模や影響範囲について考察する。

(2) 解析結果

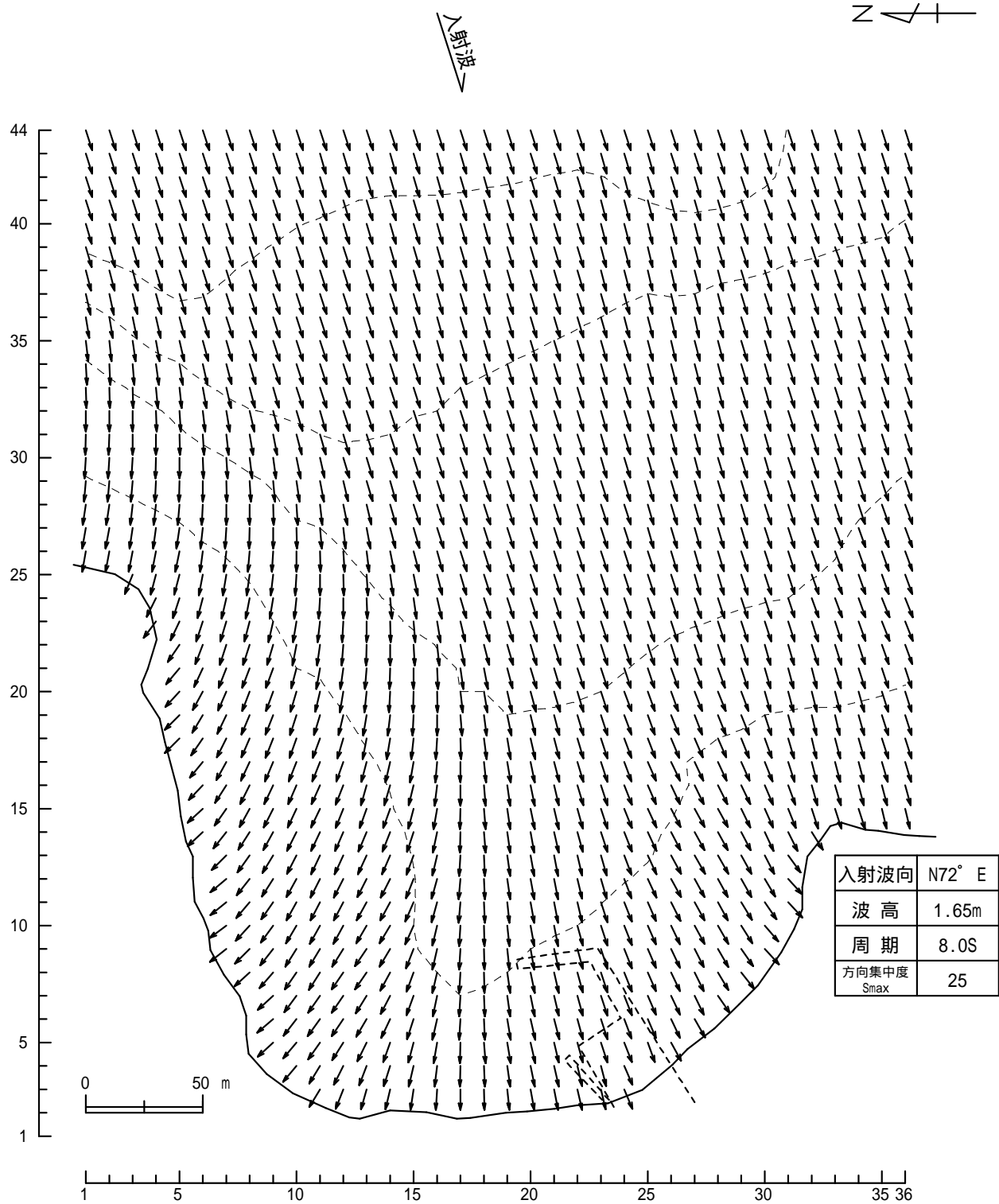
防波堤はブロックや石材で被覆された消波構造としており、反射率を 0.3 と設定した。計算結果を図・資 8-1.(9)に示す。

これによれば、反射波は、沖側および漁港の南側に進行するものの、波高比は最大でも 0.2 程度に留まっている。また、現況における波浪条件と比較すると、防波堤の直前面では波高比でも、波高比の増大は 0.02 程度と影響は軽微である。また、反射波の進行する東側の海域でも防波堤のから 100m程度離れると波高比の増大は 0.01 以下となり、反射波の影響は無視できる程度となっている。

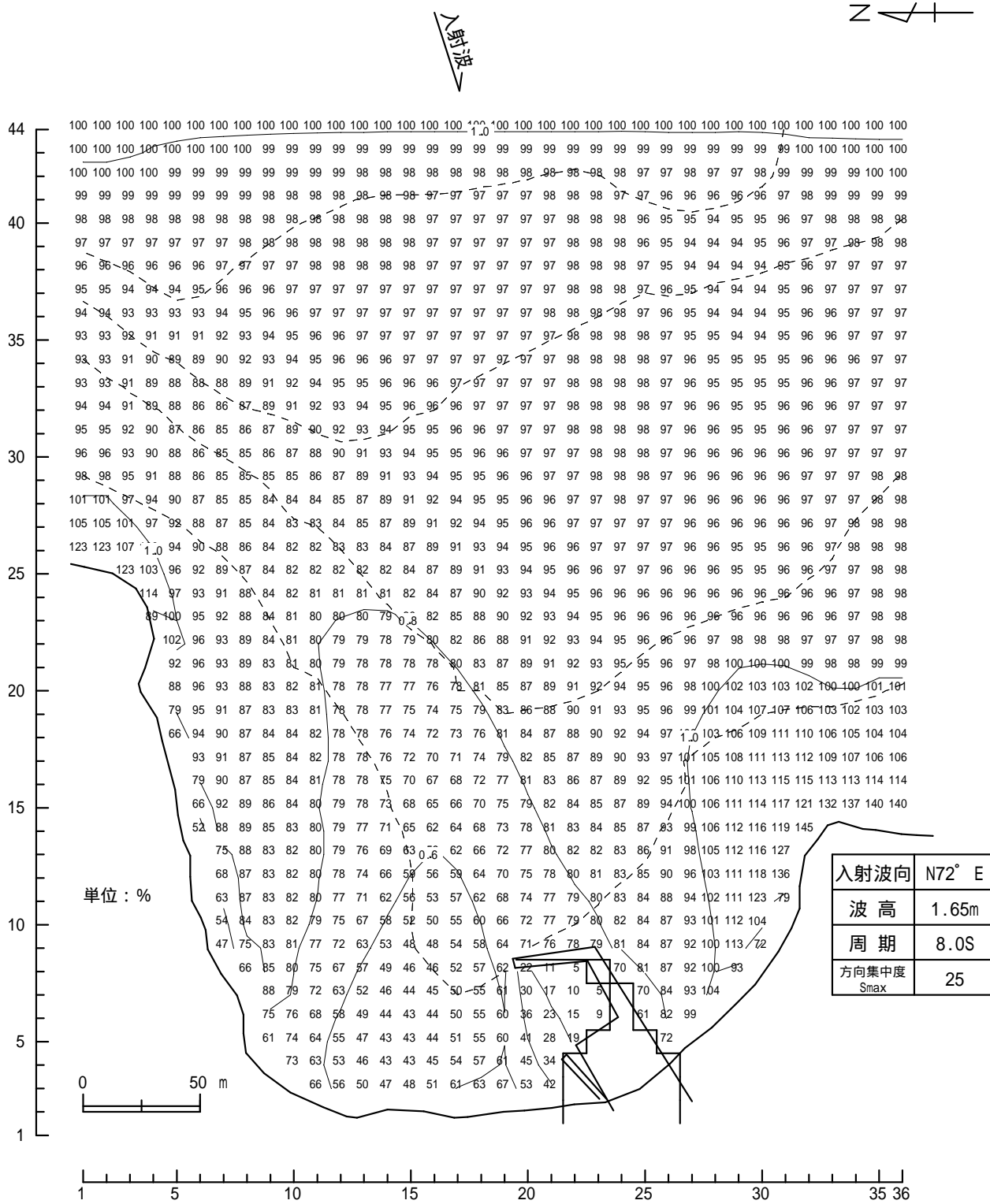
また漁港の南側海域では、反射波の影響よりも、防波堤の遮蔽効果による波高の減衰効果が大きく、現況よりも波高比が 0.1~0.2 程度減少する。



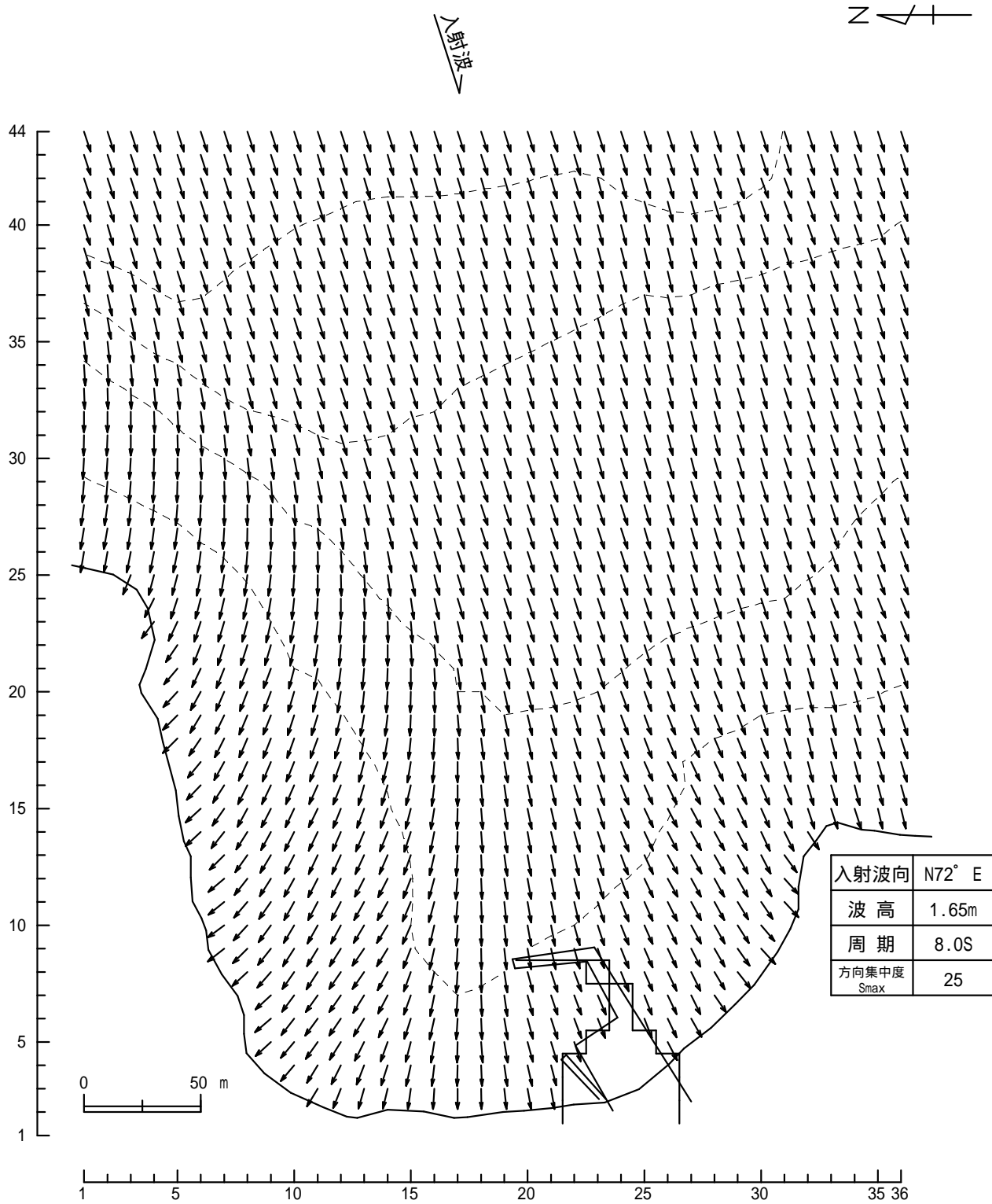
図・資 8-1.(1) 波高比分布図 (現況)



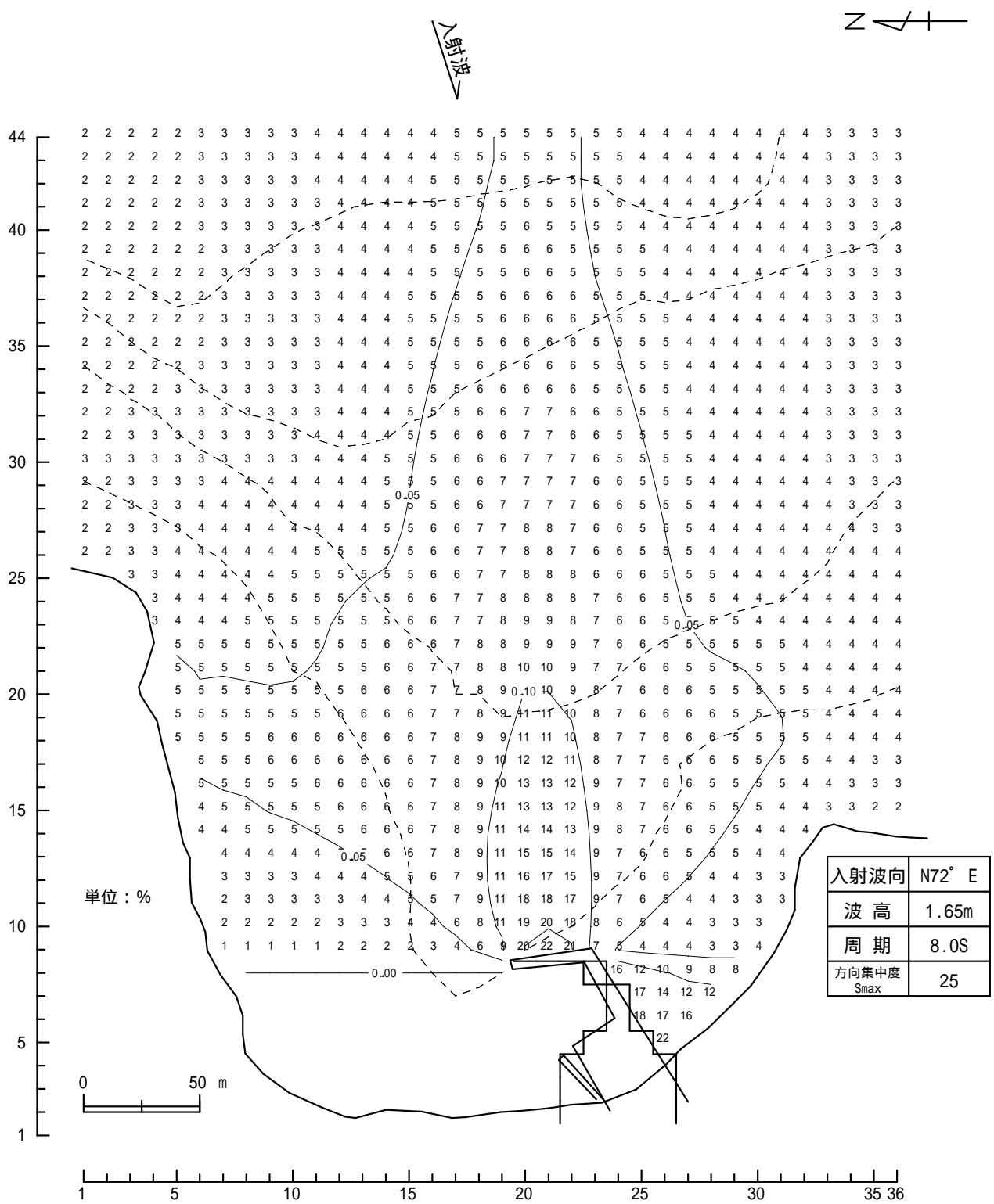
図・資 8-1.(2) 波向分布図(現況)



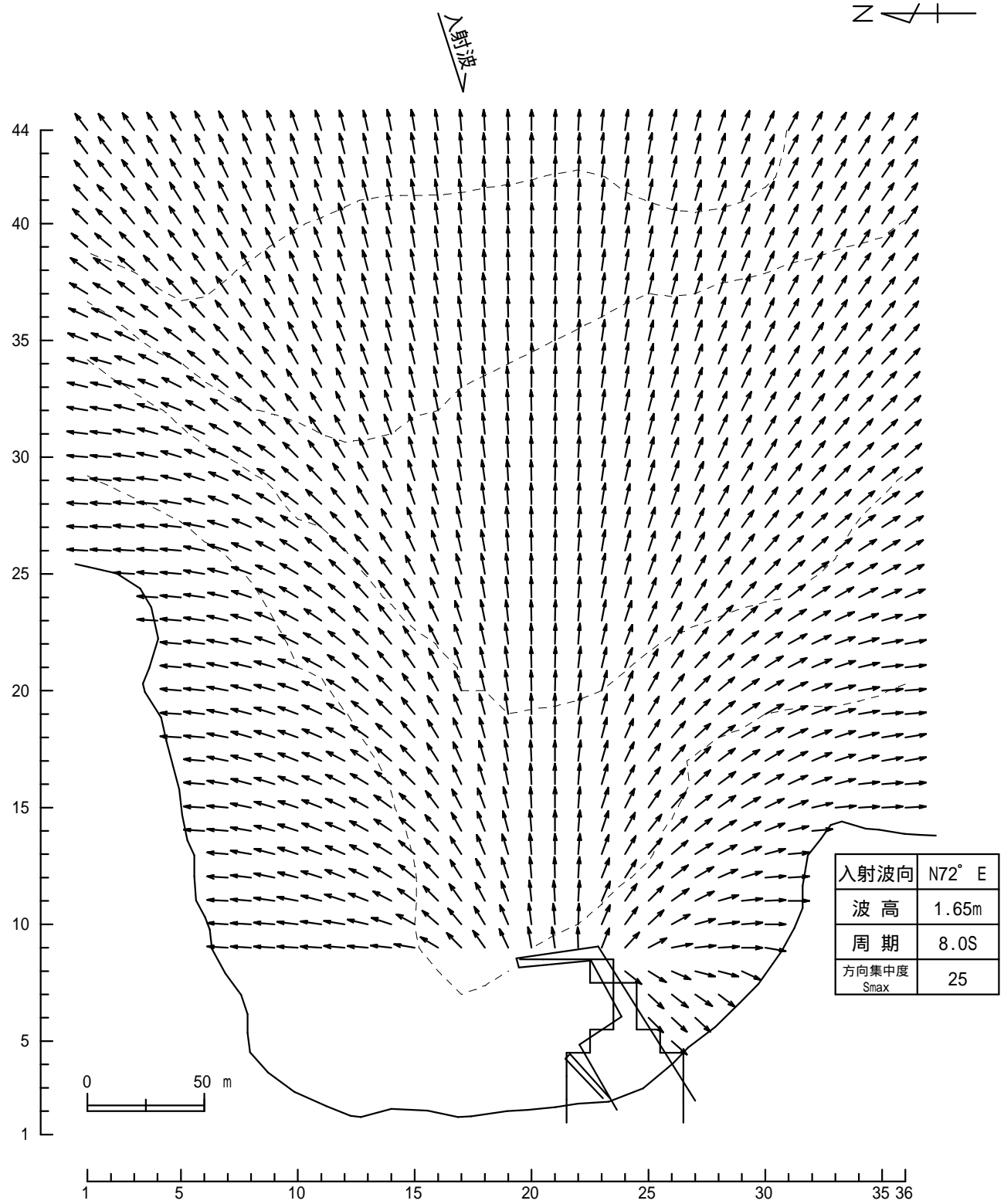
図・資 8-1.(3) 波高比分布図 (入射波)



圖·資 8-1.(4) 波向分布圖 (入射波)

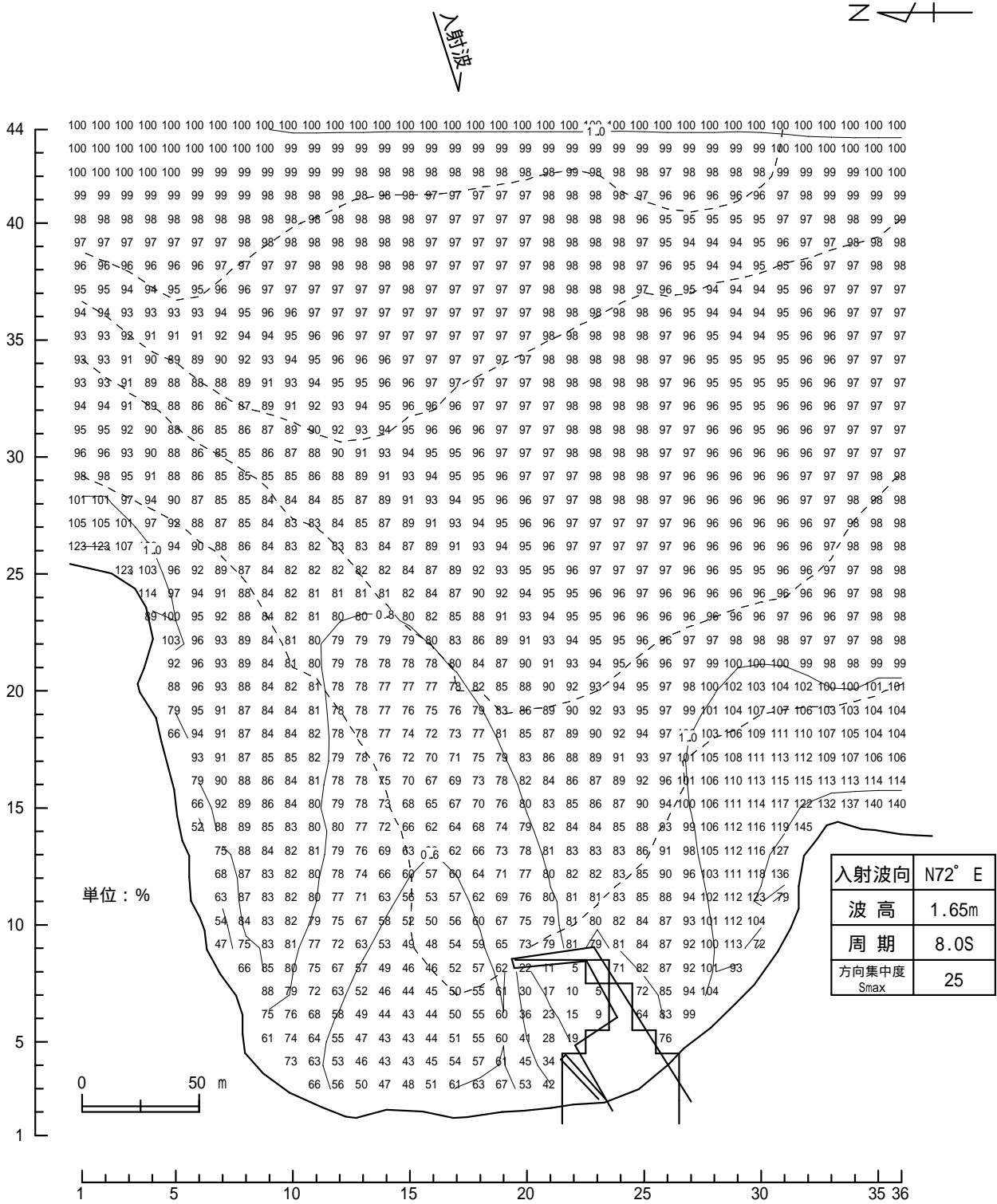


図・資 8-1.(5) 波高比分布図 (計画 1、反射波合成)

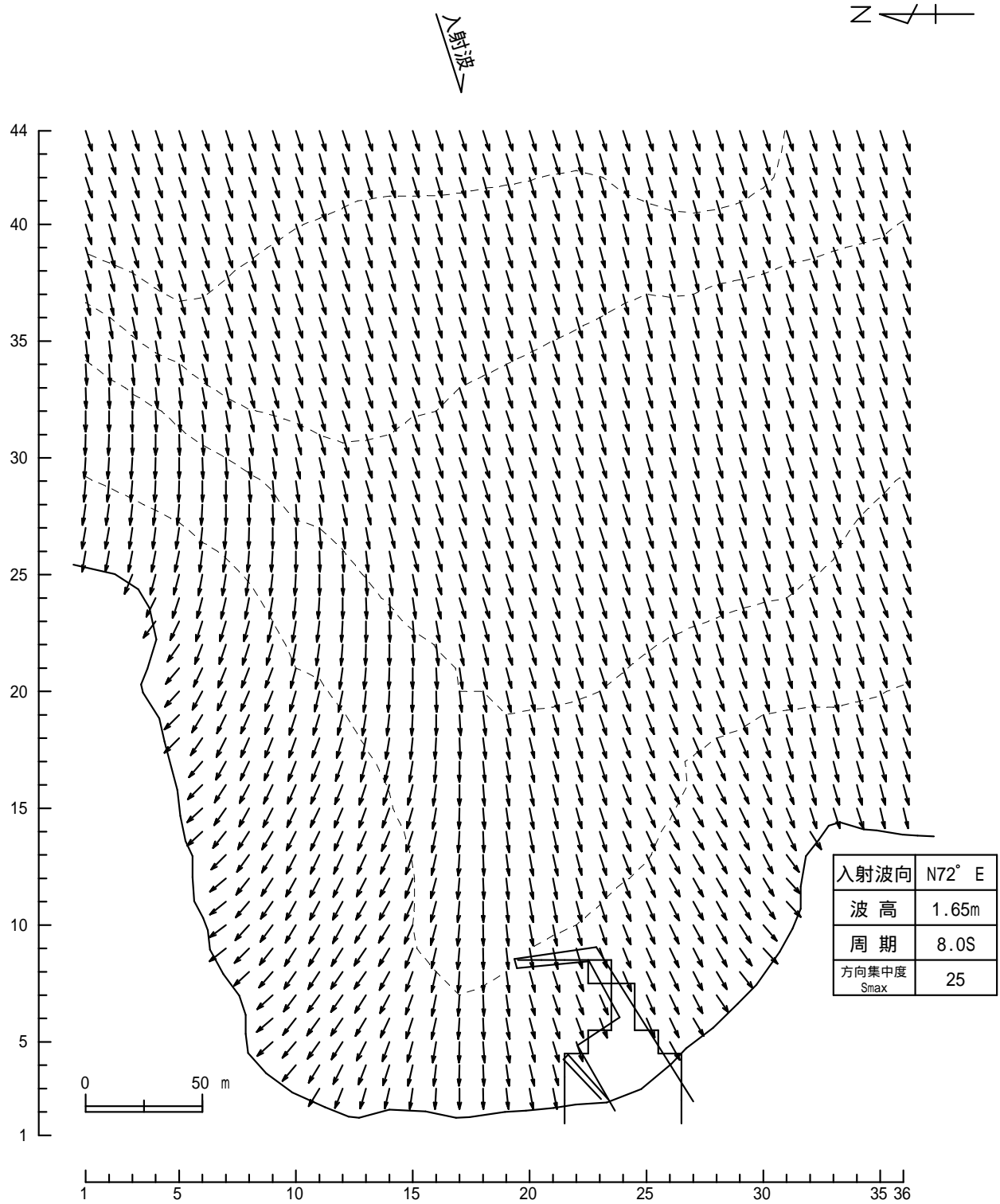


圖・資 8-1.(6) 波向分布圖 (計画 1、反射波合成)

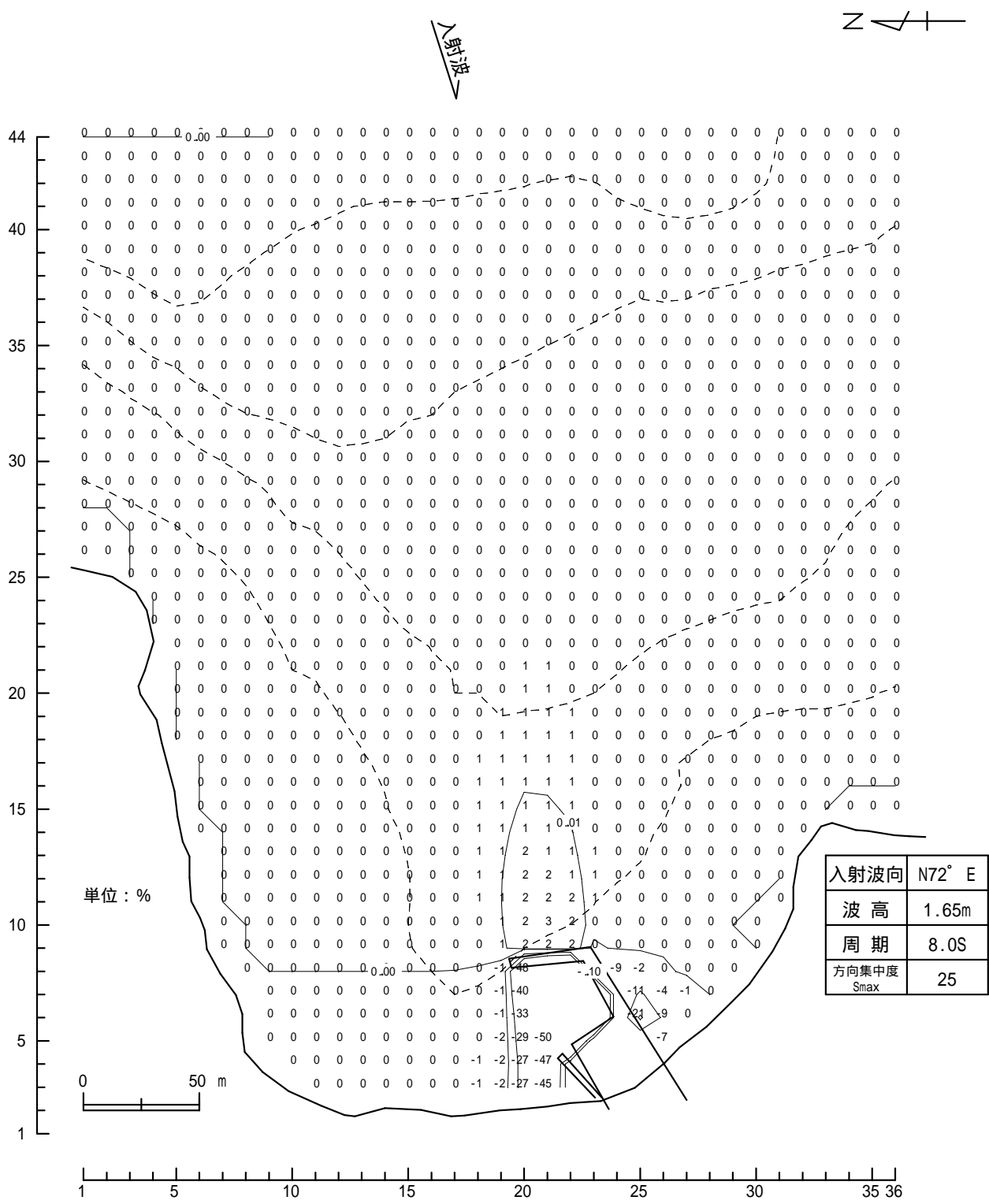




図・資 8-1.(7) 波高比分布図 (計画 1、合成波)



図・資 8-1.(8) 波高分布図 (計画 1、合成波)



図・資 8-1.(9) 波高比分布図 (計画 1、差分)

## 資料 8-2 地形変化計算結果（2次元モデルによる地形変化）

計画地における漂砂源としては、オウイア湾の南北に位置する岬の崖地と計画地を挟んだ北側のドライリバーと南側のリトルリバーが考えられる。既存船揚場付近に位置するドライリバーは年に1回程度洪水があるが、それ以外は涸川である。またリトルリバーは計画地の南150mに位置しているが、その出水程度はドライリバーと同程度である。これら河口付近の底質はシルト分が少ないことが底質分析から言え、この2つの河川の漂砂源としての影響は低いと言える。また、南北の岬の崖地に大きな崩落跡等は見られず、漂砂源としては、オウイア湾の海底に存在する砂質土と考えられる。

したがって、防波堤建設等による周辺海域の波浪変形、流れの変化を外力として、海底での剪断力から漂砂量の分布を求め、この収支により海底地形の変化を求めることで地形変化状況を評価検討する。検討に当っては、短期間の周辺海域の地形変化状況について2次元モデル（パワーモデル）により行うものとする。この方法は、波浪変形計算のパート、流れの計算のパート、地形変化計算のパート、からなっている。

の波浪変形計算のパートでは、代表波浪に対する波浪変形計算を行い、ラジエーションストレスの分布を求める。では、ラジエーションストレスおよび水位勾配を外力として波浪による流れの計算を行う。では、以上の、波浪、流れの計算結果を外力として海底での剪断力から漂砂量の分布を求め、この収支により海底地形の変化を求める。

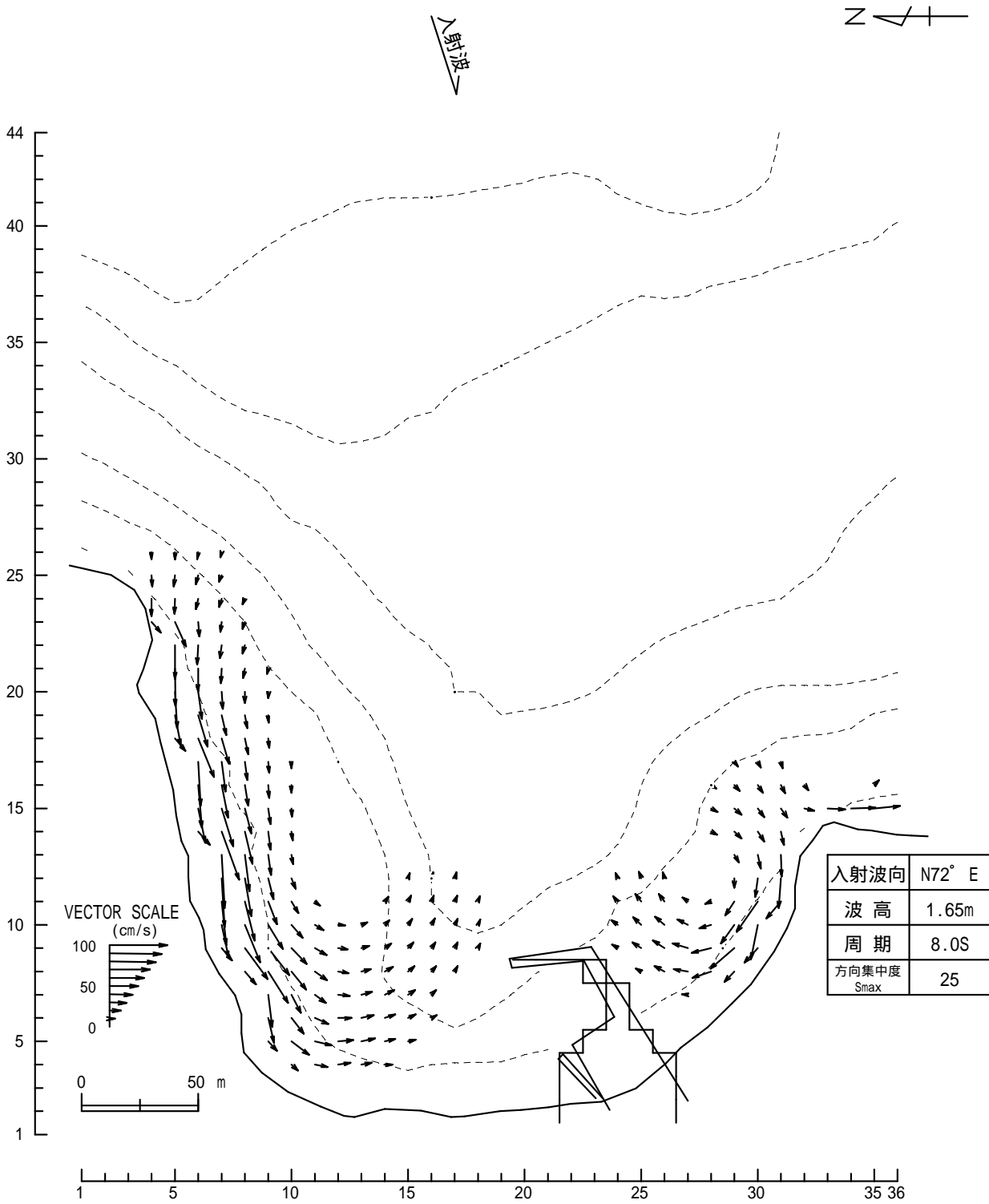
図・資-8-2.(1)は、上記波浪に対する流れの計算結果である。漁港の北側および南側では、漁港に向かう流れがあるのがわかる。

また、波浪推算結果から、1年間の来襲波浪に対して、波浪エネルギーが同値になるような、上記の波浪の作用日数を算定すると約40日となる。すなわち、この波浪を40日間作用させると、エネルギー的には通常時波浪を1年間波浪させたのと同値となる。

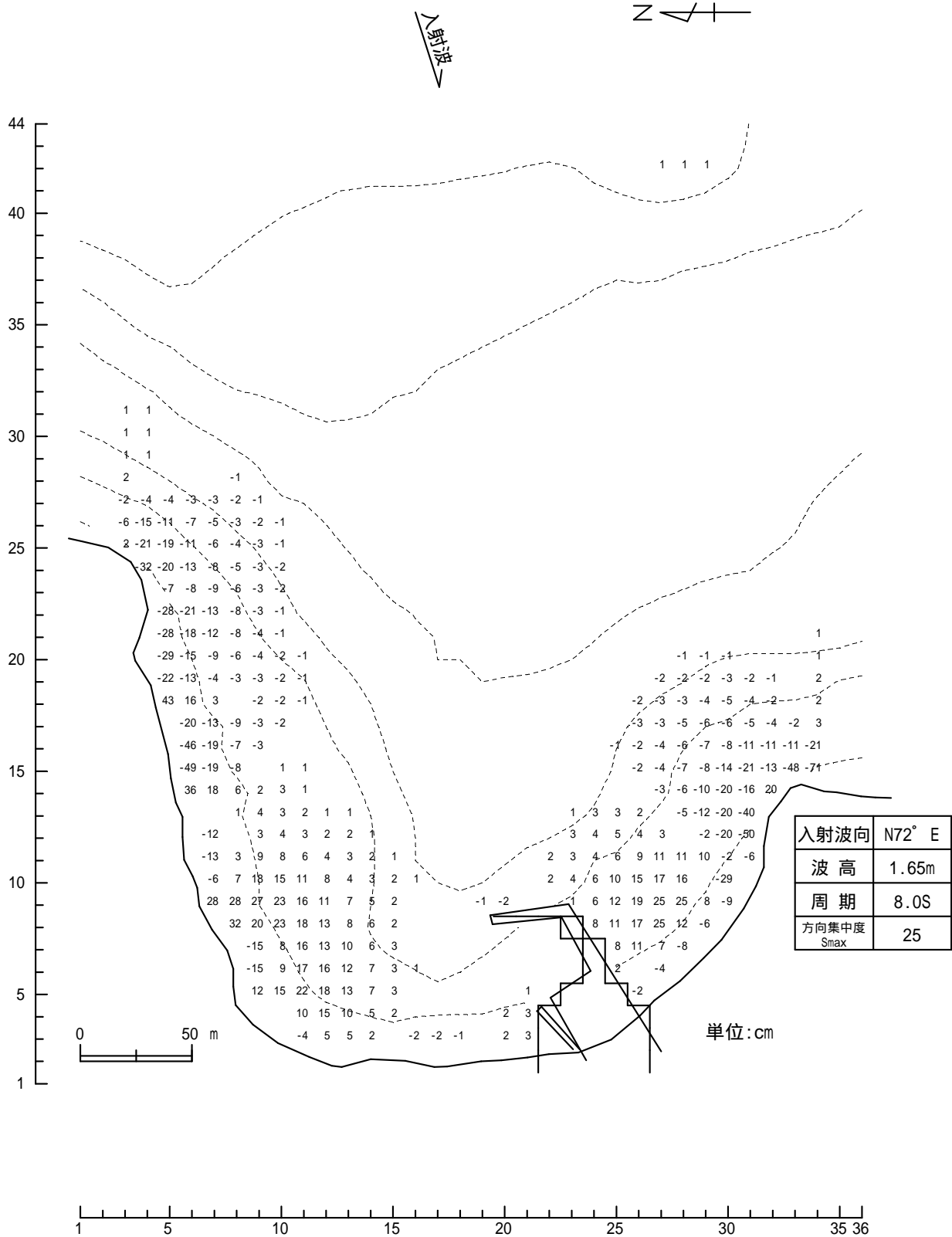
通常時波浪を1年間作用させた場合の計算結果を図・資-8-2.(2)～図・資-8-2.(3)に示す。これによれば、漁港の南側に漁港に向かう流れによる10cm程度の砂の堆積が予想されるが、漁港の北側では顕著な地形変化はみられない。

なお、地形変化の計算では、現地での観測値を再現する、キャリブレーションを行って計算におけるパラメーターの設定を行うのが普通である。今回の場合、観測値がないためごく一般に用いられるパラメーターを用いた。したがって、今回の計算結果は漁港周辺の地形変化の傾向をみるもので、絶対値については目安と考えるべきである。

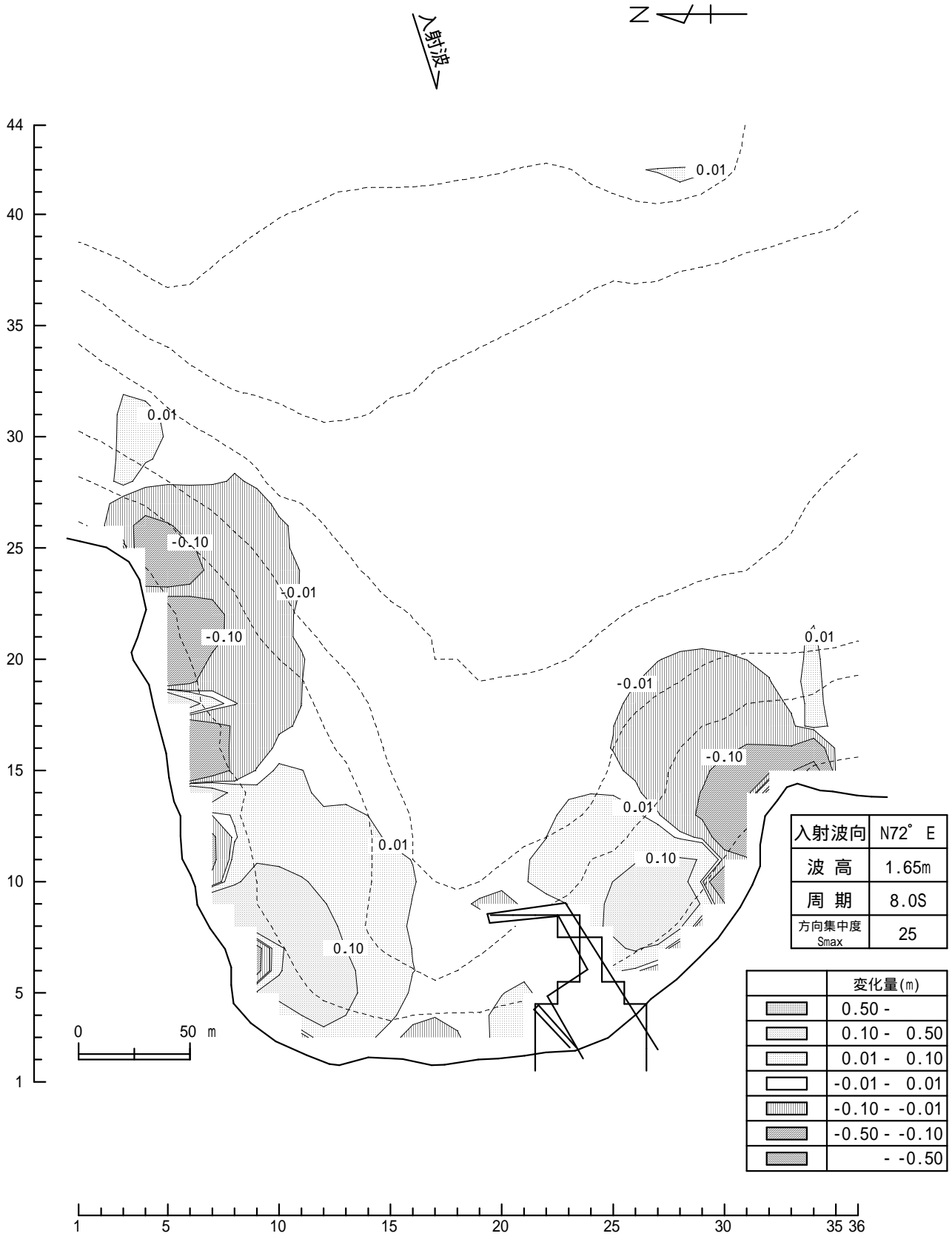
また、漁港の北側の岩礁部に砂の移動が激しい水域があるが、この周辺は粒径の大きな海岸であり、今回用いた粒径0.5mm程度の砂に対する計算結果をそのまま用いることはできない。



图·资 8-2.(1) 流速分布图



図・資 8-2.(2) 水深变化量



図・資 8-2.(3) 水深変化の分布

資料 8-3 計画施設利用に対するオウイア・ファンシー・サンディベイ漁民の同意書

Agreement to utilization of the New Fisheries Center in OWIA

We are very happy to hear that government will establish new fisheries facility in OWIA. We also pleased to utilize this facility and it believe to carry out us lot of benefit and to make opportunity for fisheries development and regional activity. Therefore we would like to agree here to toward to utilize OWIA Fisheries Centre when it will be realize

Name	Name of Boat	Registered No.	Location	Date	Signature
JEREMIAH YOUNG		J8-211-OW	OWIA	11/03/06	J. Young
KENRICK NANTON	SUGAR	J8-184-OW	OWIA	11/03/06	K Nanton
RODNEY BALLANTYNE	LIVE UP	J8-177-OW	SANDY BAY	11/03/06	R Ballantyne
KENROY BALLANTYNE	RUSH	J8-190-OW	OWIA	11/03/06	K Ballantyne
WAIN NANTON	COMMANDO	J8-483-OW	OWIA	11/03/06	W. Nanton
DENNIS NANTON	-	-	OWIA	11/03/06	Dennis Nanton
ALRICK NANTON	STRUGGLERS	J8-189-OW	OWIA	11/03/06	A Nanton
ENOCH MICHAEL	TRIPLE-D	-	FANCY	12/03/06	E Michael
MATTHIAS SUTHERLAND	-	J8-187-OW	OWIA	12/03/06	M. Sutherland
OSWYN MCCOY	-	-	OWIA	12/03/06	O McCoy
BERESFORD NANTON	-	-	OWIA	15/03/06	B Nanton
COLLIN HUGGINS	-	-	OWIA	15/03/06	C Huggins
ENROY BAPTISTE	-	-	SANDY BAY	15/03/06	E Baptiste
FRANKY HENRY	PRAISE YE JAH	J8-500-SB	SANDY BAY	15/03/06	F. Henry
BERTRUM BAPTISTE	-	-	OWIA	15/03/06	B Baptiste
KENDON RICHARDSON	-	-	OWIA	15/03/06	K Richardson
FITZ-GERALD CORDICE	CASSUM	J8-191-OW	OWIA	15/03/06	F Cordice
CASSEL KING	-	J8-404-FA	FANCY	16/03/06	C. King
MICHAEL BAPTISTE	-	-	OWIA	16/03/06	M. Baptiste
EVANS KING	-	J8-188-OW	OWIA	16/03/06	E King