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Joint Management of Local Fishery in Japan and Its Performance Evaluation

— A Case Study of the Sarufutsu Village in Hokkaido Prefecture —

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1. INTRODUCTION

Research Background

Japan was a best fishery country in the world, but Japanese fishery has declined since the beginning of the 1990s. The reasons of this include the establishment of the EEZ system, the strengthening of international fishery resource management, the intensification of the international competition of the marine products market due to the globalization of the economy, the sharp rise of the management costs, and the deterioration of the marine environment. As a result of deteriorating environmental conditions surrounding such kind of fishery, it has been pointed out that Japanese fishery has a declining competitiveness and the fishing village economy also deteriorates.



Research purposes

This report aims to clarify the scheme of regional fishery cooperative management and evaluate its performance;

The example of Sarufutsu Village was used, which is located along the Sea of Okhotsk in Hokkaido Prefecture



- ①The brief condition in exemplified region will be introduced ;
- ②The scheme of fisheries joint-management in the sample region will be clarified ;
- ③The economic performance in the regional fisheries will be econometrically evaluated.

Research methods

- **Empirical analysis based on case analysis**

⇒ Takes the regional fisheries management in Sarufutsu Village, Hokkaido as the case.

- **Econometric analysis**

⇒ Comparative analysis of the performance in regional fisheries management within Japan.

2. Overview of the fishery of Sarufuto village in Hokkaido



Income rankings of National municipalities towns and villages

Rank	City name	Name of prefectures	Average earnings
1st	Minato-ku	Tokyo	10,231,218 yen
2nd	Chiyoda Ward	Tokyo	8,484,142 yen
3rd	Sarufutsu	Hokkaido	7,844,618 yen
4th	Shibuya Ward	Tokyo	7,363,777 yen
5th	Ashiya-shi	Hyōgo Prefecture	6,120,463 yen
6th	Chuo-ku	Tokyo	5,950,109 yen
7th	Meguro	Tokyo	5,869,890 yen
8th	Bunkyo ku	Tokyo	5,746,667 yen
9th	Setagaya	Tokyo	5,330,660 yen
10th	Musashino	Tokyo	5,012,590 yen
11th	Shinjuku ward	Tokyo	5,005,834 yen
12th	Urayasu City	Chiba ken	4,220,218 yen
13th	Oshino Village	Yamanashi Prefecture	4,170,171 yen
14th	Kamakura city	Kanagawa Prefecture	4,503,852 yen
15th	Suginami	Tokyo	4,486,108 yen
16th	Shinagawa	Tokyo	4,466,271 yen
17th	Anping Town	Hokkaido	4,440,779 yen
18th	Nagakute	Aichi-ken	4,661,649 yen
19th	National city	Tokyo	4,343,482 yen
20th	Mitaka City	Tokyo	4,146,440 yen

Source : http://www.nenshuu.net/prefecture/shotoku/in_shotoku_city.php

Sarufutsu village now

Total population		
Total population	2,825people	2010Year
Total Population (Reclassification)	2,940people	2005Year
Population increase or decrease the number of 2005 to 2010	-115people	2010Year
Population change rate from 2005 to 2010	-3.912%	2010Year
area	590.00km ²	2010Year
Population density	4.8人/km ²	2010Year
Foreigner		
Foreigner population	119people	2010Year
South Korea・North Korea	1people	2010Year
Chinese	117people	2010Year
American	1people	2010Year

Percentage of age		
Less than 15	435people	2010Year
15 - 64 years old	1,776people	2010Year
Over 65 years old	614people	2010Year
Average age	44.47Age	2010Year
Male average age	43.32Age	2010Year
Female average age	45.51Age	2010Year
Age medium number	45.88Age	2010Year
Percentage under 15 years old	15.40%	2010Year
Percentage of 15-64	62.87%	2010Year
Percentage 65 years and over	21.73%	2010Year
Percentage over 75	12.46%	2010Year
Percentage over 85 years old	4.04%	2010Year

Summary of Sarufutsu village fishery cooperative

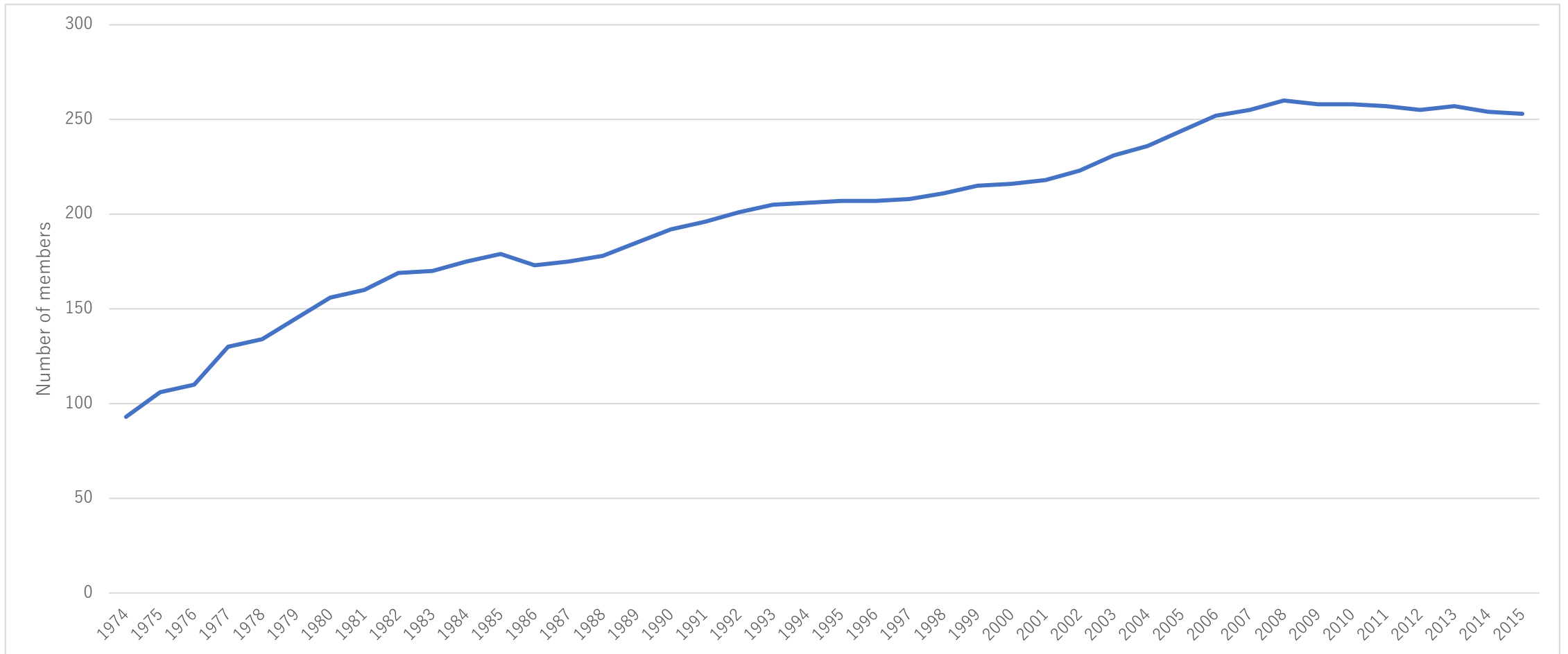
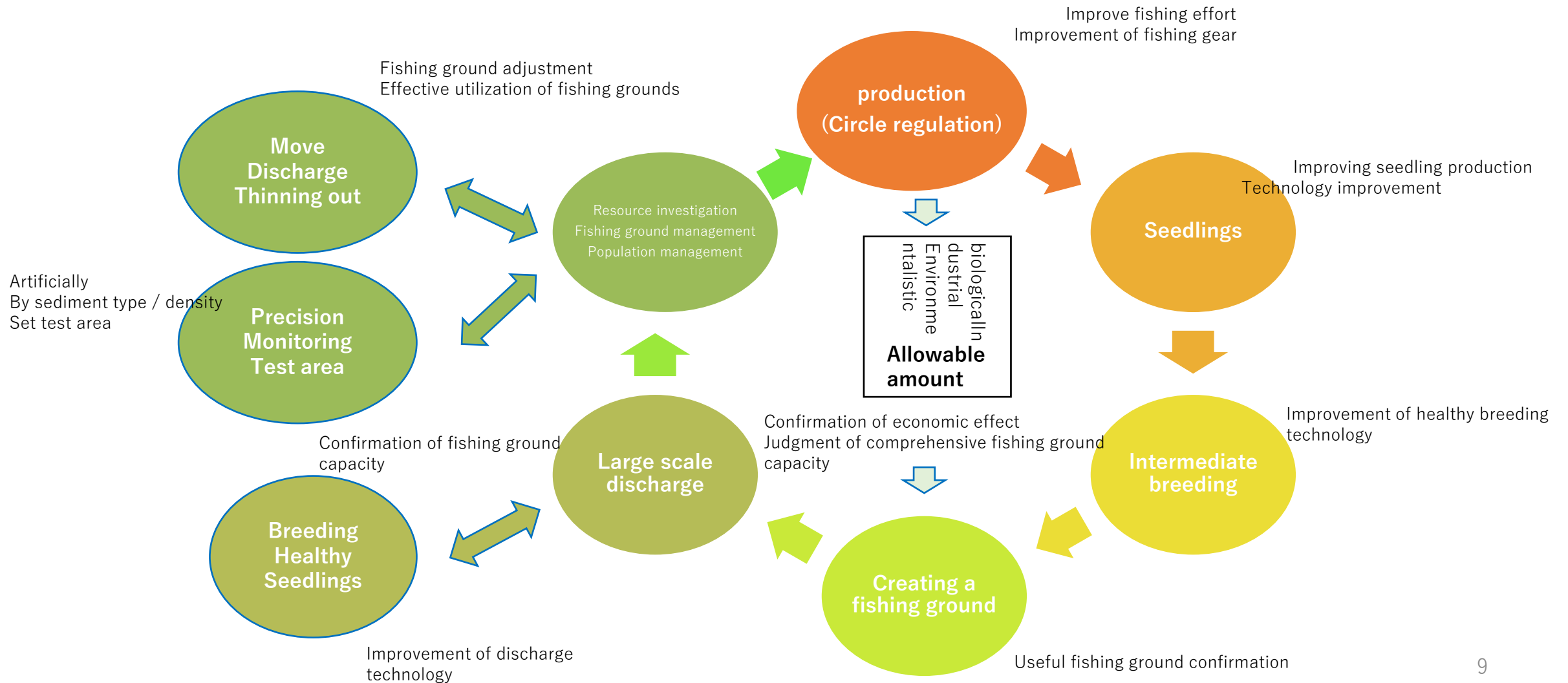


Fig. Changes in the number of members of the Sarufutsu village fishery cooperative

3.Regional fishery cooperative management scheme of Sarufutsu village

① Scallop Ground Distribution Cooperative Management System



Fishing ground rotation system's mechanism

A fishing ground
(first year)

B fishing ground
(second year)

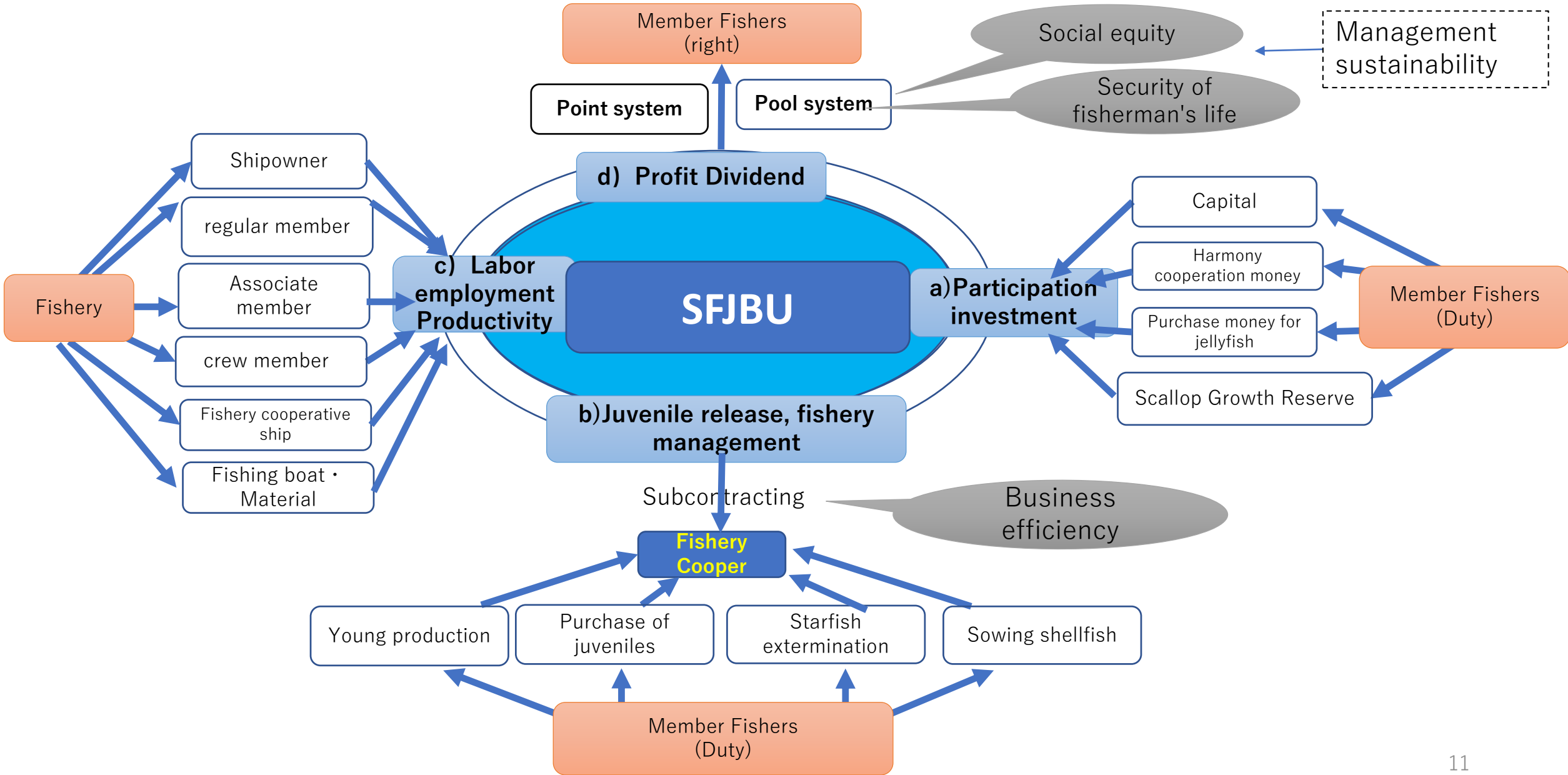
C fishing ground
(third year)

D fishing ground
(4th year)

Objects to
be captured

E fishing ground

② Sarufutsu Scallop Fishery Joint Business Unit(SFJBU)



Point system

Table : How to calculate equity points by member's subscription status (Sarufutsu Village Fishery Cooperative)

Equity score calculation consideration item	Maximum limit point	How to add dividend 1 year	Additional 1 years	New subscriber first year	Additional years	Note 5 Minimum age required for full mark
1) Joined years scoring	20	2	10	2	10	10
2) Investment rating	20	1-20	-	-	-	-
3) Out of the high point	20	1-4	5	1		8
4) Increase cooperation rating	20					
①Purchase funds	10	2	5	12		9
②Fishing field improvement business	5	1	5	Same as left	Same as left	5
③Increase reserve savings	5	1	5	Same as left	Same as left	5
5) Inspection point	20					
①Fishery rights owner and 36-38 year (Also, those who cooperated with the fishery improvement project)	10	-	-	1	10	10
②Degree of dependence on fishery	5	5	-	1	5	5
③Other contribution to union	5	5	-	1	5	5
Total	100	-	-	-	-	-

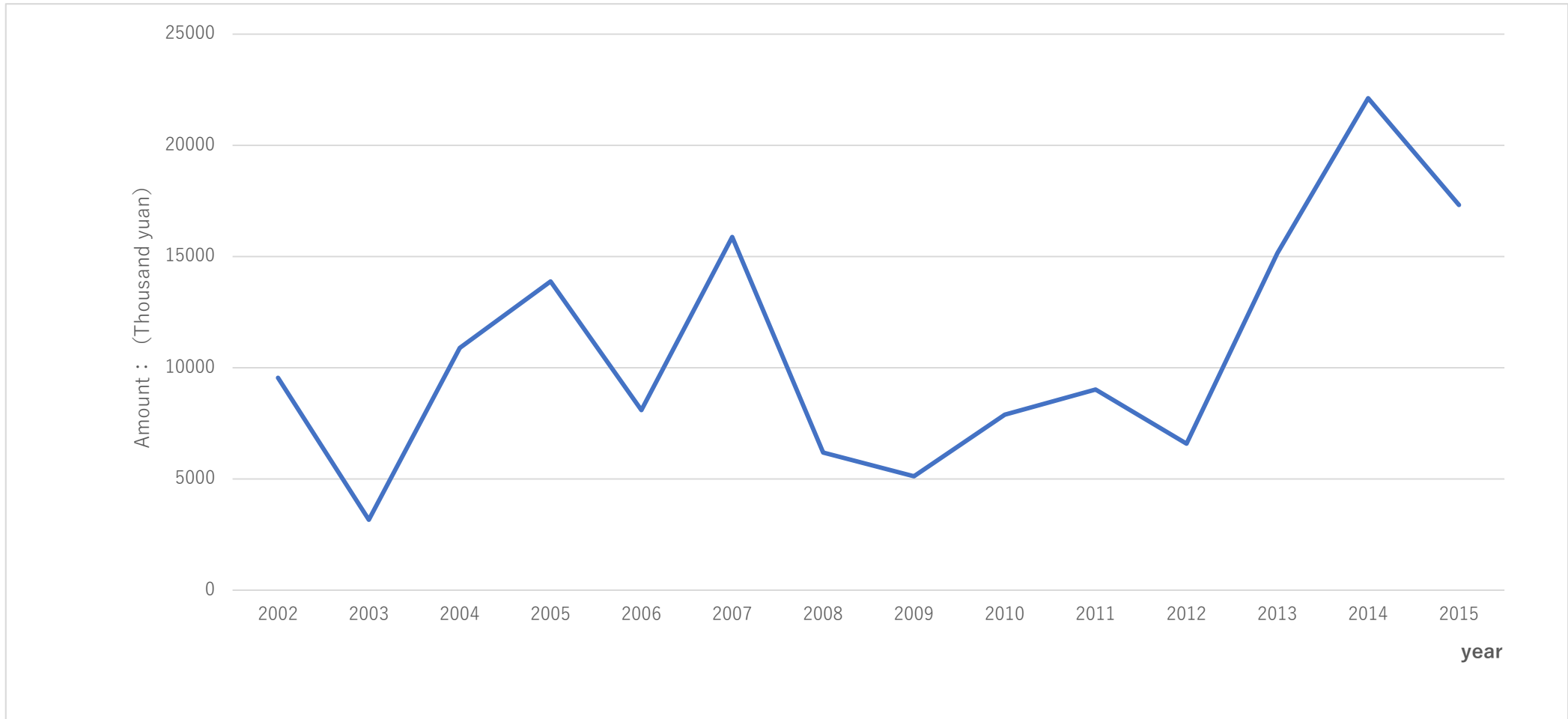


Fig. Status of allocation from sniped fishery cooperative entity

③ The mechanism of joint sell in Sarufutsu village

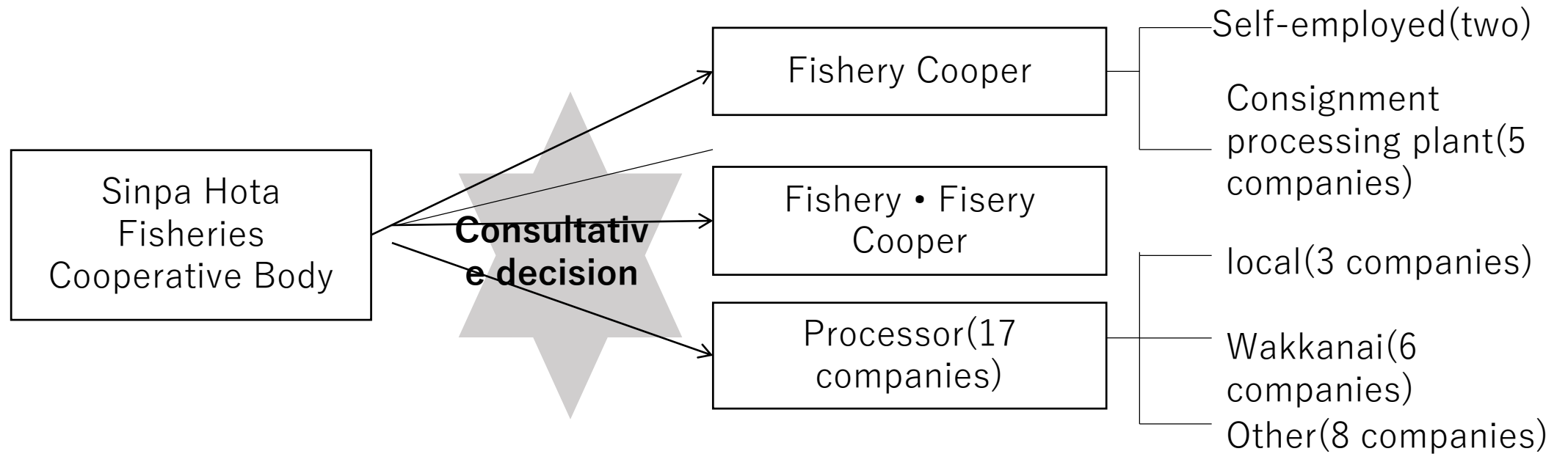
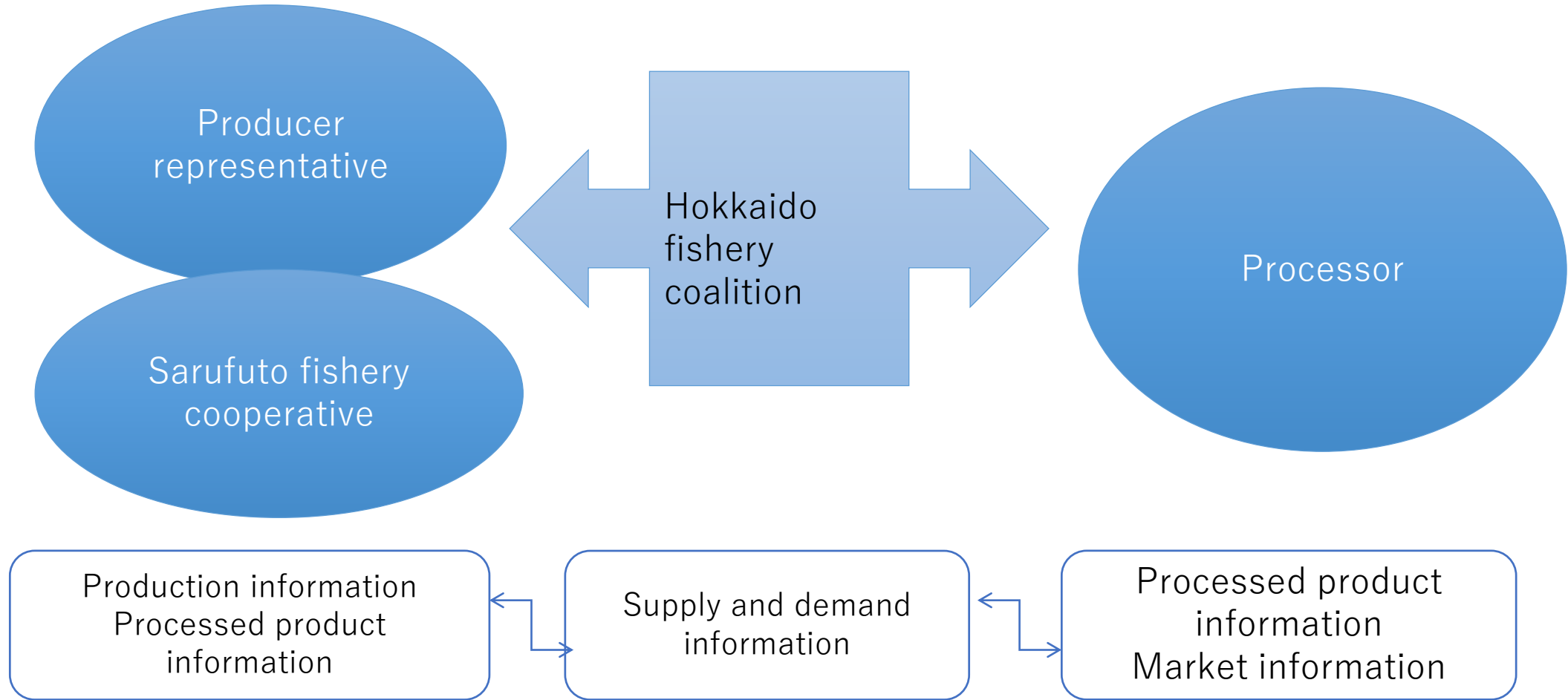


Fig. Structure of the distribution channel of scallop and distribution method

Consulted Price Decision



Consignment processing to fishery cooperatives

The consignment processing to the fishery cooperative is done in two types:

- ① Outsourcing processing to two factories that are managed as a self-service processing business of the fishery cooperative:
 - A) Dry Scallop processing place is one;
 - B) One ball cooling plant;

- ② Consignment processing to 5 private contracted processing plant contracted with fishery cooperatives.

4.Sarufut Village fishery Joint management performance

Analysis model-TOPSIS

TOPSIS (Technique for Order Preference by Similarity to Ideal Solution), which is close to the ideal technology, is a multi-objective decision-making method. The basic idea of the method is to define the ideal solution and the negative ideal solution of the decision problem, and then find a solution in the scientific scheme, which is closest to the ideal solution and farthest from the negative ideal solution.

Step 1: normalize the decision matrix;

$$z_{ij} = \frac{y_{ij}}{\sqrt{\sum_{i=1}^m y_{ij}^2}}$$

Step 2: Calculate the information and determine the right;

$$H_j = -k \sum_{i=1}^m f_{ij} \text{Inf}_{ij}$$

step3: calculation calculation rule;

$$x_{ij} = w_j \times z_{ij}$$

step4: definite ideal solution minimal ideal solution. Root (5) grant (6) definite ideal solution X^*
premise ideal solution X^0 ;

step5: Evolutionary European distance method calculation Each evaluation Evidence arrival ideal
solution negative ideal solution distance;

$$d_i^* = \left[\sum_{j=1}^n (x_{ij} - x_j^*)^2 \right]^{1/2}$$

$$d_i^0 = \left[\sum_{j=1}^n (x_{ij} - x_j^0)^2 \right]^{1/2}$$

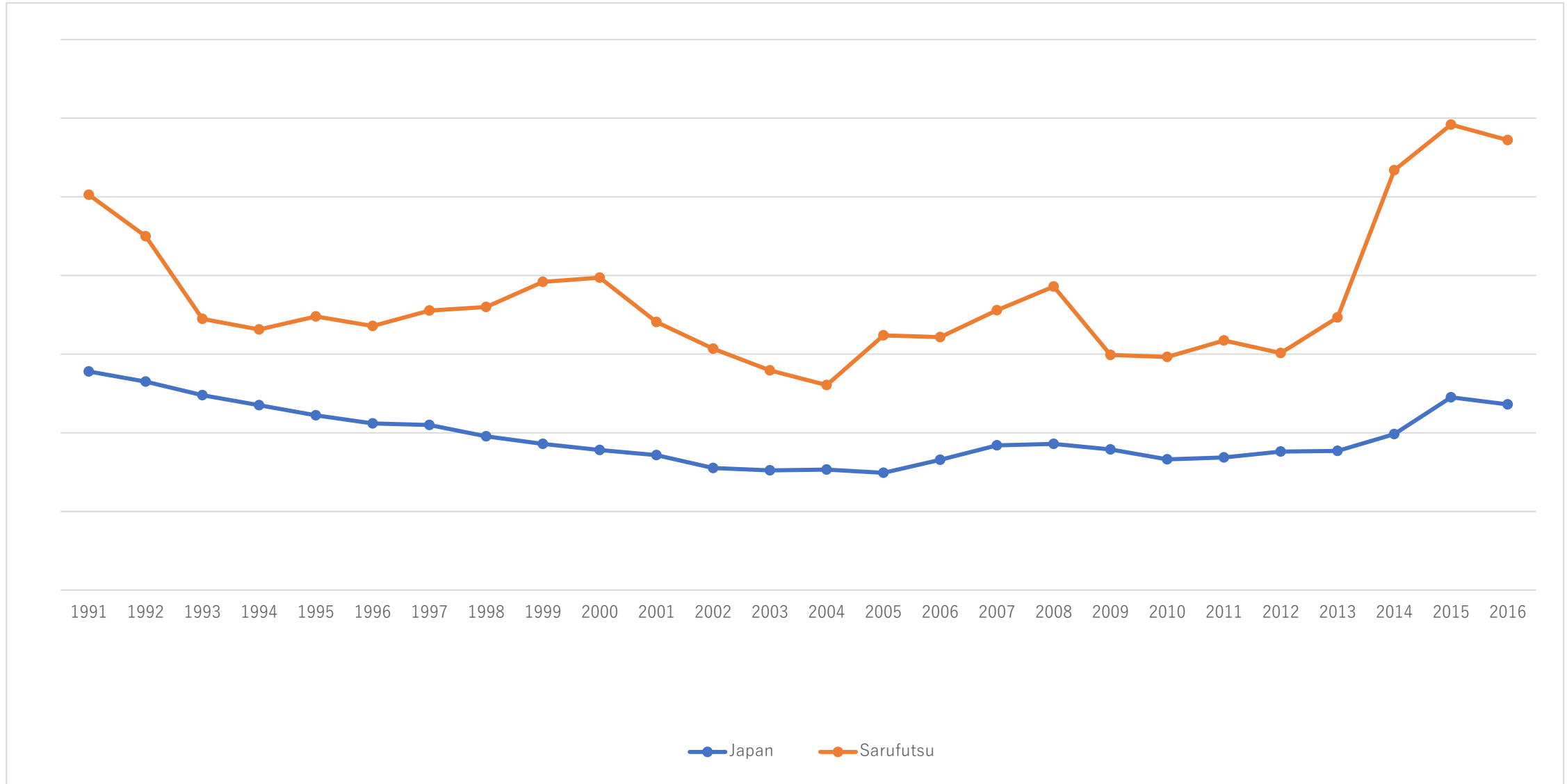
Step6: Calculation Each review Elegantly competitive evaluation index. Utilization (6) formula
calculation calculation evaluation index, JitsuetsuUniversity, Evaluation aesthetically praise.

$$C_i^* = d_i^0 / (d_i^0 + d_i^*)$$

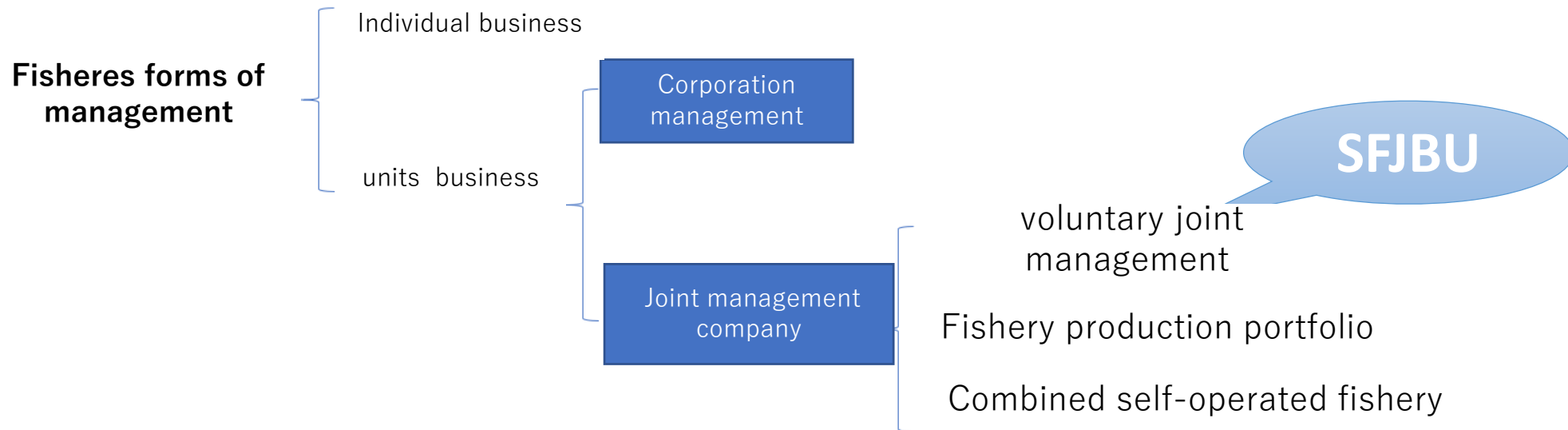
data

Primary indicator	Second-level indicator	Three-level indicator	Pointing direction	Japanese Data Sources	Sarufutsu Data Sources
Fishery Management Performance	Production factor	Fishery production quantity	+	Japan Fisheries Aquaculture Industry Annual Report	Japan Fisheries Aquaculture Industry Annual Report
		Fishery production amount	+	Japan Fisheries Aquaculture Industry Annual Report	Japan Fisheries Aquaculture Industry Annual Report
	Labor factor	Number of fisheries employees	+	Fishery employment trend survey report	Hokkaido resident basic ledger
		Fishery population ageing rate	-	Fishery employment trend survey report	Fisheries hundred
	Infrastructure elements	Fishing vessel tonnage	+	Number of coastal fisheries	Sarufuto village history (Volume 2)
		Number of fishing boats	+	Number of coastal fisheries	Sarufuto village history (Volume 2)
	Villager income	Total production of villagers	+	Fisheries White Paper	Hokkaido resident basic ledger
		Per capita income of villagers	+	Fisheries White Paper	Fishing village Taxable income ÷ Calculated based on the number of taxpayers.

Result



5. Conclusion



- **Individual business:** An individual enters capital and manages a company with all legal and economic responsibilities.
- **units business:** An economic unit that plays a social function of producing goods and services in the market economy, more generally a collaborative system or organization that creates economic utility is called a company.
- **Joint management company:** To operate two or more people in a single business with equal power.

(Reference) Business type

- **A corporation** is a company that raises funds under a limited liability from shareholders who have subdivided employee rights (shares), carries out business by a manager entrusted by shareholders, distributes profits to shareholders, "corporate status It is a company form having "
- **A group company** is a company of a unified organization (company law 576 (2), Article 580) consisting solely of employees who are directly and indirectly responsible for corporate creditors in connection with corporate obligations.
- **A joint-stock company** is liable for direct repayment directly to an obligation of a company, jointly and directly with an unlimited liability employee directly and unconditionally responsible for corporate creditors against corporate creditors. It is composed of one or more direct limited liability employees who are solely responsible for amounts, and is a dual organization company (Article 576 (3), Article 580 of the Companies Act).
- **A limited liability company** is a company that was established as a new entity under the Companies Act established in 2005 (Heisei 17) and consists only of employees who are only indirectly limited liability limited to the contribution amount specified by the articles of incorporation It is a unified organization company (Article 576 (4), 580 (2) of the Companies Act).
- **An agricultural cooperative** is a voluntary organization established by farmers to improve their economic and social status based on the Agricultural Cooperative Association Act (1947).
- **state enterprise** A company managed by the country.
- **Local municipal enterprise** It refers to a company operated by a local public entity. Most of it is a utility project, that is, a business that provides regional monopoly because it provides essential services that form the basis of residents' livelihoods and requires large fixed capital equipment
- **Special corporation** A corporation established by special law to carry out public interests or special projects on national policy. Japanese Red Cross Society, Japan Broadcasting Corporation (NHK), Nippon Racing Association and others.

Thank for
you attention