

Ebibara Shrimp Fishing Ground, Japan

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1 Part I: Static Analysis - Collective action

The fishing community of Ebibara is crowded, and the oldest section in the city of Utsumishi. The original study, which was published in 1968, catalogues approximately 300 fishermen in the community. The targeted resource unit is mainly shrimp, yet some other small fish also have market values. Some fishermen also participate in seaweed cultivation. Fish and seaweed are two chief resources in Ebibara. All fishermen belong to the local fishing co-op, which has proprietor rights to nearby fishing grounds explicitly granted by the Japanese government. There are 3 other organizations related to the co-op: Women's auxiliary, youth division and kogi kumiai. The rules of fishing are not very strictly. The government also regulates types of fishing activities and gears. Illegal fishing methods are employed during "off seasons", because legal practices provide insufficient income.

1.1 The Commons Dilemma

- The most serious problem of Ebibara is that newly introduced technological improvements in fishing gear result in larger and more efficient catch, which not only threatens the traditional culture of fishing but also leads to overfishing of the resources. The diesel engine was first installed in 1932, and was legalized by the government 5 years later. Now every boat in the regular Ebibara fleet is equipped with the diesel engine. The diesel engine enables the boats to move faster and farther into the sea and enables the utilization of new catching methods and fishing gear. Nylon nets reduce the wear and tear compared to traditional nets. And racks installed on the boats improve the efficiency of trawling.
- Illegal fishing methods are employed during "off seasons", because legal practices provide insufficient income. There are variations of illegal fishing activities. Sorobangeta is a modified fishing method of senshakogi (trawling). It is utilized by most members of the fleet in certain times because of its efficiency. This method suggests nets fastened with stones walking along the sea floor, which disturb the sea bottom more and eliminate greater quantities of infant shrimp and other fish than legal fishing methods. Ichijokogi (one-net fishing) uses 2 long planks and a larger net, which destroys tiny fish, catches many marketable ones, and depletes sea resources more ruthlessly than legal trawling. Other illegal practices cope with human conflicts that

arise from poaching in areas of the sea that are off-limits to the Ebibara fleet. There was one actual violence reported in 1952.

1.2 Biophysical Context (IAD)

- **Natural infrastructure:** There was no explicit description of natural infrastructure for the fishing ground, yet the beach that fishermen raise seaweed is a long narrow strip of shallow water adjacent to the beach with sandy sea floors. The beach is next to a tidal river that carries fresh water along the shore.
- **Hard human-made infrastructure:** The fishermen of Ebibara operate a fleet. The fishing fleet normally rest at 25 feet from the wharf's edge. The fleet is formed by about 80 boats. The boats weigh 3 5 tons, and with the average length of 35 feet and width of about 8 feet. The boats have a single mast, with the nylon net fastened high on the mast and flowing down to the deck. There is a small cabin housing the diesel engine near the middle of the boat. Boats are also equipped with poles, wires, electric light, coils of rope and baskets for catches. Boats are family-owned, and always operated by male family members. The boats are equipped with diesel engines, nylon nets, shortwave radios, thick bamboo arms, iron rakes with curved teeth, and stoves. The gears for legal trawling and illegal fishing activities are different. The gears mostly used for legal trawling are nylon nets, often connected to racks, which can disturb and ensnare the shrimp and other small fishes on the bottom of the sea. Soroban-geta, an illegal modification of trawling, uses nets fastened with rounded rocks to walk on the sea floors to disturb and eliminate larger quantities of baby shrimps and fish. Another illegal fishing activity, ichiyokogi, equips the boats with 2 long, heavy planks that are tied to a large net. The net opens wider than regular nets used in legal trawling, which makes larger catches of other marketable kinds of fish. There are some larger boats almost 2 3 times the size of the boats in the fleet. The large boats are equipped with boxes of ice and fridges to haul the catches.

The cultivation of seaweed uses hundreds of bamboo poles and special nets fastened to the poles. Each household owns an average of 15 nets. In summer, the fishermen catch sardines to increase their income. The sardine boats are equipped with radars to detect the schools of sardines.

1.3 Attributes of the Community (IAD)

- **Social Infrastructure** The cooperative in Ebibara was established with strong encouragement from the Department of Fishing. There are about 300 members registered to the cooperative based in Utsumi-shi. The co-op is governed by 12 directors and 5 financial officers. These members are considered as the central board of directors. All directors and financial officers are elected annually during their general meeting with about two-thirds of the membership. In addition, every 5 grassroots subdivisions can select 3 representatives, making the full board of 32 persons. These 32 people meet about 20 times each year, and there are small meetings by sectional representatives.

There are also 300 members belonging to the women's auxiliary. The executive board consists of 17 members, who are elected by the same five community subdivisions,

and these 17 members elect president and vice-president. Women have no chance to be elected into the co-op board of directors, nor does the auxiliary have official power. An adjunct of the co-op is the youth division of 35 male members, and the division works as a mixture of recreation and service. Powerful trawler that owns the fleet organized an unofficial local pressure group that strengthened the rights of the fleet and to protect its own members when members engage in illegal fishing.

To reduce the discovery of illegal fishing activities by police patrol boats, the boats of other types that go out in the morning or afternoon bring back the report of the patrols. They also make suggestions based on the weather. The fleet then acts accordingly. Fishing activities in Ebibara are households based. The household owns the fleet boat, and often 2 male members from the household operate the boat without hiring outside labor. Trawling does not restrict regulated, yet by 1950 federal and prefectural laws limited the boats to travel no further than 2 3 miles from the beach. The fishermen tend to think they are self-hired thus they set as many of their own rules as possible. The fishing days increase and the fishermen work more than 12 hours per day.

- **Human Infrastructure** Human infrastructure in Ebibara fishing ground is assumed to be high. The membership in co-op and adjunct divisions are on a household-base. The election of board in the co-op is by secret ballot, but the selection is influenced much by relationships. Members have equal right of election regardless how many share of stock they own.

1.4 Rules in Use (IAD)

1. Position Rules:

- Over 300 members registered to the cooperative based in Utsumi-shi, whose chief occupation is fishing or allied endeavors. Fishermen that have no position in the fleet find other occupations. And fishermen have rights to be elected as board of directory in the co-op. Women cannot be elected as board of directory. 35 male members belong to the youth division, which is an adjunct of the cooperative. The owners of the fleet of powered trawlers organized the local pressure group called kogikumiai. About 200 household members of the cooperative cultivate seaweed along the beach, yet only a few members devote full-time cultivation.

2. Boundary Rules:

- Fishermen living in Ebibara are homogenous, and those who have positions on the fleet can fish the shrimp fishing ground.
- To be a member of the Ebibara co-op, one must fish at least 90 days in a year; own at least 5 shares of the stock, and agree to the membership rules of fishing.
- About 200 members of the cooperative share the seaweed cultivation ground. Each of the 5 community divisions has its section of the shore. And the rest continue working with the fleet.
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3. Choice Rules:

- Fishermen who have no position on the fleet find occupations: in large ships that travel far north or south for salmon, tuna and whale; part time fishing in non motored boats near the shore and supplement their income with jobs; employed by propertied fishermen; a few members migrate to urban areas
- Fishermen participate in illegal fishing activities in the off-season because the legal trawling provides insufficient incomes.
- To increase income, about 200 household members of the co-op cultivate seaweed but only a few devote full time cultivation.
- 5 households engage in the sardine catch in summer for food. And there are another 30 households that process dried sardines.
- There are people who were previous fishermen now working in fish processing factories or fishing businesses.

4. Aggregation Rules:

- To become a member in the co-op, one has to devote at least 90 days fishing in a year; owns at least 5 shares of stock; and agrees to the rules of fishing established by the membership. Since the requirements of being a member are adopted, the membership decreases.

5. Scope rules:

- Fishing area is limited to 2-3 miles off the beach.
- The seaweed cultivation ground is shared by 200 households in the co-op, and each of the five community divisions has its own section of the shore.

6. Information Rules:

- The Ebibara fleet has adopted a reaching agreement with other types of boats that the boats will bring back the reports of patrols on the prowl. About 150 fishermen are led informally by spokesmen in kogi kumiai. Spokesmen sometimes suggest the fleet to stay home because of the conditions of the sea water.

7. Payoff Rules:

- Police patrol boats are constantly on the alert, particularly during the spring season, when legal trawling cannot provide sufficient incomes for fishermen. The punishment varies. Police patrols may confiscate the equipment and the catch; and sometimes there will be a fine of at least 14 USD on each arrested boat yet not likely to occur. Fishermen whose equipment was confiscated could re-install the equipment.

1.5 Summary

The problems in Ebibara continue. The illegal fishing activities are not under strict control. Police patrols and leaders of the co-ops take charge in rule reinforcements but fishermen in Ebibara organized a report system to avoid the discovery. There also remains conflict

between fishermen in Ebibara fleet and fishermen poaching in Ebibara fishing ground. The poaching is mainly of 2 forms: simply trespassing and breaking the traps for certain kinds of fish. In 1952, one violent conflict was reported. The co-op assists in raising money for fishing activities and consumption, yet it is much weaker in consuming products than producing. The co-op has control and agreements on fishing rights yet it has no strict reinforcement of the rules.

2 Part II. Dynamic Analysis - Robustness

After 1950, under the encouragement of Department of Fisheries and the supervision of local co-op, fishermen in Ebibara began the cultivation of seaweed. There are 200 households cultivating seaweed and seaweed becomes other chief resources. In summer, about 5 household fishing sardines and another 30 household process dried sardines.

3 Part III. Case Contributors

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