Deciding Where to Fish: The Skipper's Dilemma in Southeast Alaskan Salmon Seining

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Abstract   Deciding where to fish is the principal responsibility and privilege of being skipper on a seine boat. In making these decisions, a skipper is constrained by ecological variables, governmental regulation of the fishery, cannery capacities, his knowledge of seining lore, and the expectations of his crew. Initially, he tries to assess fluctuating conditions and make a rational choice of seining location. But, his final selection does not necessarily follow from the preliminary considerations. This paper describes the social context of this decision process and the difficulties of trying to maintain an image of rationality when making reasonable, not rational, decisions.

Introduction

From July to September, salmon seine boats crowd the waters of Southeast Alaska. Each of these boats represents a capital investment of $60,000 to $400,000, either on the part of a large fish-processing company or an entrepreneurial skipper. Whether a temporary franchise or an owner-operation, each boat acts as an independent small business. To make money, a boat must catch salmon

in quantity. For this to happen, its skipper must make wise decisions concerning where to put the seine in the water.

All businesses involve decisions. Decision theory in microeconomics is tailored to describe the typical business situation. The classical view tries to predict price and output levels as the equilibrium points in the flow of factors and commodities (Schneider, 1974, pp. 43–50). In this typical situation, each firm has control over and decides upon both price and output (Cyert and March, 1963, pp. 5–16). In seining, however, neither price nor output is under the control of the fisherman. Other than the decision whether to fish, deciding where to fish is the skipper's only opportunity to influence his output. Thus, the skipper's locational decision is not the typical business situation. The problem facing a skipper is not how much fish he should catch and at what price, but where to locate his seine during legal fishing periods in order to catch as much fish as possible. The decision is similar, for example, to that a McDonald franchise makes only once: where to locate the business. Skippers make such locational or deployment decisions every business day.

When selecting a seining location for an opening, skippers consider a wide variety of factors. These range from tidal conditions and weather forecasts to the stage in the salmon runs to estimates of how many other boats will be in a given area to crew morale. The skipper tries to gauge the state of affairs in the seine fishery and upon that basis make a wise choice of his boat. His crew expects the decision to be made in accord with definite reasons—as opposed to basing it on hunches, sheer randomness, dreams, divination, etc.—and this image of rationality is what he tries to project.

The terms "rational" and "reasonable" are emotionally charged and suffer from diverse definitions, so a terminological clarification is in order. By "rational," I mean a decision process which involves: (a) conscious consideration of the factors which differentiate the alternatives, (b) deliberation in terms of these considerations, (c) reflexive and thoughtful concern with the process itself, and (d) adherence to definite procedures for calculating the final selection from among the alternatives. "Reasonable" implies all but the last of these criteria. That is, a reasonable decision is just like a rational one except that the manner by which the final synthesis is accom-

plished cannot be specified by the decider in advance of the decision itself—the decider does not adhere to a set procedure. In these usages, "reasonable," though distinct from "rational," is *not* equivalent with "irrational."

Contrary to the image of rationality, most skippers fall short of explicit, algorithmic procedures when it comes time to decide. Initially, they assess conditions in the fishery in very clear terms. They gather as much information as they can from as many sources as they are able. But, the final selection of seining location does not necessarily follow stepwise from the original considerations. Rather, it is an amalgam of rational evaluations and nonspecifiable, gestalt synthesizing.

In what follows, I first sketch the ecological context of salmon seining. Then, I move on deck, so to speak, and outline some of the relevant aspects of a boat's social structure. Finally, I describe the sorts of things skippers talk and think about when making their crucial deployment decisions. The objective is to instill an appreciation of the social context of the skipper's decision and his dilemma in trying to maintain an image of rationality while making reasonable, not rational, decisions of where to fish.

Background Conditions of the Inside Waters Seine Fishery

Salmon are wideranging migratory fish. Toward the end of their life cycles, they return to spawn in the streams in which they were spawned. This is a seasonal phenomenon, the duration and intensity of which vary both from one year to the next and geographically. In Southeast Alaska, there are hundreds or thousands of spawning streams, each being the destination of some of the returning salmon.

These simple facts of geography and salmon behavior combine to create three basic givens for Inside Waters seiners:

1. Salmon seining is seasonal work. In Southeast Alaska, the season lasts, roughly, from July to late September.
2. Knowledge of migratory patterns, on a microlevel, is an im-

portant aspect of seining lore. Because the salmon are on the move, knowing where they are one day does not by itself inform the seiner where they will be the next day.

3. In the Inside Waters fishery, it is especially difficult to predict salmon whereabouts because there are so many spawning streams. By contrast, in the Columbia and Fraser River runs, at least the seiners know where the fish are going.

By the time salmon reach the Inside Waters of Alaska, they have dispersed into smaller schools and swim near the shorelines searching for their spawning streams. Taking advantage of this, Inside Waters seiners like to set their seines right against the shore. However, there are not many places where this can be done without snagging the seine on submerged rocks. The result is that Inside Waters seiners form rotation lines at spots known as "hook offs." These hook offs are places where the water gets deep enough rapidly enough to allow against-the-shore seining. Usually, there is a hook off about every one-half to two miles. All this contrasts with Puget Sound and Noyes Island practice where seine boats set their seines in more or less open water. Open water seining permits each boat to work at its own pace without having to wait in line. Thus, though a small concern to open water seiners, where other boats will be is a serious consideration for Inside Waters seiners. Crowded areas mean lost seining time owing to long rotation lines.

In addition to environmental and biological factors, seiners must contend with governmental regulation of the fishery. Seining in Alaska is a tightly regulated industry. The salmon runs have been dwindling for the past sixty or seventy years, and various measures have been taken to curb this historical trend. "Limited Entry" laws are in effect to control the size of the fishing fleet, but the most basic form of regulation is temporal and geographical restriction on legal seining. The Alaska Department of Fish and Game (ADF&G) announces "openings." Such an announcement specifies both when and where legal seining may occur. For example, there may be a thirty-six-hour opening in three or four ADF&G administrative areas. From the seiners' viewpoint, these administrative areas may break down into twelve or so places to seine, each having several hook offs.

A whole season may have as few as eighteen legal seining days (e.g., the 1975 season). Thus, it is important that a boat not miss an opening owing to mechanical problems, crew absenteeism, or some other mishap. Also, during an opening, it is wasting valuable time to cruise around with the seine on deck or to wait idly in line at a hook off. There is too little time for anyone to squander by hunting for schools of salmon, then making sets on them. In these respects, as well as others, salmon seining is different from mid-ocean tuna seining (Orbach, 1977).

Another parameter of the fishery is that cold storage plants and canneries have upper limits on the number of fish they can process per day. During poor and average years, the fleet does not exceed these processing limits, but in a good year the daily catch from the fleet as a whole may well go beyond processing capabilities. Should this happen, the canneries impose quotas. A typical quota would be four thousand fish per boat per day.

The last background condition of the fishery (arising out of conditions larger than the boat itself) is that the seine boats are run as independent small businesses. Only a small percentage of the skippers own their boats free of any mortgage. Most boats are owned by canning companies, and the skippers contract to run them for one season at a time. The fish-buying companies keep tally on the number of fish and poundage according to the boat that caught them, not as to which cluster of boats or the fleet as a whole. That is, the individual boat is the unit of bookkeeping. This pattern of ownership and record-keeping is congruent with the desires of the seiners, who are self-styled "rugged individualists" and committed to the American entrepreneurial ideal.

The human response to all of these background conditions is a view of seining as gambling. Each seiner hopes to make a lot of money in a relatively short time. Whether he makes a lot or a little, it is the same amount of work. How much he does make depends on his boat's catch and, therefore, on where his skipper decides to seine during the openings.

Social Structure on a Seine Boat

Alaskan salmon seine boats are about 17 m. (55 ft.) long and have

crews of six to eight people, the skipper included. Pay is based on a share system. Labor, management, and capital all receive shares of the total value of a boat's catch. Labor and management pay all food and fuel bills. Usually, there are eleven or so shares per boat. Each crew member gets one share of the catch; the skipper gets from one to two shares; and the remaining shares are divided among the owner(s) of the boat, the seine, the power skiff, and other major items of equipment.

From the crew members' point of view, the skipper is the boss whether or not he is also owner of the capital goods. Crew members work for the skipper, and they require his signature to receive pay from the cannery's accounting office.

The duties of the skipper include organizing the division of labor on the boat, acting as the repository of seining lore, being liaison with other boats and the fish-buying companies, and deciding where the boat will seine during the openings. In other words, the skipper is the manager of the business. He may or may not work on deck depending on the skill level of his crew and his own preferences. On the other hand, he is not a distant executive far removed from the activities on deck. For a fuller ethnographic coverage of these matters, see Gatewood (1978, 1979) and Langdon (1977). Browning (1974) provides excellent histories of seining hardware in the North Pacific as well as drawings and photographs.

The easy parts of a skipper's job are organizing the work, handling foul-ups when they occur, and interacting with other boats and the cannery personnel. The most difficult part of his job, and the most important, is deciding where to fish. The difficulty is exacerbated by the pressures of maintaining face vis-à-vis his crew.

No crew member wants to think that his skipper just randomly selects seining locations. Neither would he want to work for a skipper who merely follows other boats. It is expected that a *good* skipper will select seining locations based on his accumulated knowledge of salmon behavior and many other considerations and, using this wisdom, will make a thoughtful decision. The selections may not always be good ones, in hindsight. But poor judgment will be tolerated, for a while, provided the errors are seen as understandable mistakes rather than irresponsible, thoughtless blunders. Like the Norwegian herring seiners described by Barth (1966), skippers

must maintain an *image* of rationality at all times. Crews presume that their skippers weigh the evidence and calculate decisions on that basis. Successes are taken as confirmations of this presumption. Failures, on the other hand, may diminish the skipper in the eyes of his crew, the extent depending on his long-term record and his rapport with the crew.

Clearly, this aspect of the skipper's role involves a good deal of impression management, and there are different styles of being skipper. In addition to personality differences, skippers vary according to their manner of leadership, ranging from what Bailey (1969) terms "strong" to "weak."

A strong leader prefers to issue commands rather than discuss matters in a public fashion trying to achieve a group consensus. He is an authoritarian leader who does not reveal his reasoning processes to the crew. He considers himself above the crew; he is not a first-among-equals. The crew is presented with only the outcomes of his private decision processes. Theirs is not to question why, but to follow his orders. Strongly authoritarian skippers take full responsibility for their decisions. Thus, the posture lends itself to an either/or interpretation from the crew. An authoritarian type who often fails is seen as an incompetent trying to hide his mediocrity behind a veil of secrecy. On the other hand, an authoritarian skipper who persistently makes wise deployment decisions (in hindsight) is one of life's mysteries—how does he do it?—and is highly esteemed by the crew for his marvelous skill.

The so-called weak, or democratic, leaders are the polar opposites of the authoritarian type. Skippers preferring this style tend to be much more verbal and conversational with their crews. They are also better anthropological informants precisely because they do not maintain a distant, secretive, private posture. They talk openly with their crews about their difficulties in deciding where to fish. A democratic skipper often involves his crew in the decision process by asking their opinions. This is not to say that he totally abdicates his position as skipper: the decision is still technically his. Whether intentional or not, there are two effects of publicizing the decision process in this way: (1) he displays aspects of his "rationality," and (2) he spreads part of the responsibility for the decision's outcome onto the very people who are otherwise entitled to hold him solely

responsible. Thus, in the case of failure, he has at least upheld the image of rationality and, besides, the crew are partially to blame. On the other hand, a democratic skipper does not benefit from his successes as much as would an authoritarian skipper.

The usual skipper displays aspects of both polar types. A skipper's reputation in these matters is a factor in crew selection, also. Some crew members prefer authoritarian skippers, and some prefer more democratic skippers. The point of this discussion for present purposes is that skippers have to be concerned with the image they project, and different skippers handle this problem in different ways. In both types and the full range in between, however, rationality is presumed by the crew. The authoritarian skipper requires his crew to take the leap of faith and judge him according to the results he produces. The democratic type displays his "rational" approach, but runs the risk of getting an "uppity" crew.

Crew members, for their part, are supposed to be always ready to seine, whenever and wherever the skipper orders them to do so. All skippers expect at least this much. One of the easiest ways to demonstrate the desired readiness is to stay out of the galley during the times between sets. Being on deck, or better yet on top of the cabin with the skipper, and looking for salmon jumps is a generally accepted indicator of proper crew attitude. Another means of nonverbally communicating readiness is to keep busy cleaning the deck and cabin walls.

If one crew member fails to convey his readiness to fish to his skipper and fellow deckhands, then he is likely to be fired. However, if the whole crew is slack in this regard, then the skipper is threatened. He knows either that (a) he has hired a sorry bunch of deckhands, or (b) his crew has become critical of him. To test these murky waters, a skipper may admonish his crew directly for their poor attitude and explain that their reluctance is costing them all money. If this interaction does not achieve results, then the skipper interprets the crew's lack of zeal as a negative judgment of him, and this puts additional pressure and constraints on his future actions.

As in most formalized small-group situations, the social life on a seine boat is circumscribed by mutual expectations and subtle means of communicating sentiments. The physical closeness of crew and skipper only heightens and intensifies the nuances of so-

cial behavior. Given the share system of pay, skippers are even more attuned than usual to the feelings and judgments of their crews. For example, if crews were paid on a wage or salary basis, then how well the boat does would not be of such mutual interest, and the skipper could fairly ignore his crew so long as he does well enough to pay them off. As it is, skippers are very concerned, whether openly or inwardly, with crew responses.

"Winning" at Seining

In seining, there are three kinds of rewards. The first and most obvious is *money*. This is the explicit objective of the work; seining is, after all, commercial fishing. Second is *prestige*. As Shimkin and Lowe (1978, p. 94) note, prestige is often omitted from analyses of competitive behavior, and to do so is a serious oversight. And third, seining is *fun*. Smith (1981) has shown how this third element is relevant when formulating regulatory policies. but here I shall be concerned with only the first two rewards or goals of seining.

There are two formal differences between the financial and the prestige aspects of seining: (1) the prestige component is an n-player zero-sum game, whereas money is the prize in an n-player *non*-zero-sum gaming situation (see Rapoport, 1959), and (2) the demand for prestige is insatiable and constant, whereas the demand for money tends to slacken as more and more is obtained. That is, prestige is not subject to the law of diminishing returns, but money is.[1]

To gain prestige as a seiner, there is no alternative but to seine well. Money, on the other hand, can be and is obtained from sources other than fishing. Most fishermen work at other jobs during the off-season. Therefore, having lots of money does not distinguish a person as a fisherman per se. Further, there is no desire to be the richest fisherman, but many would like to be the best fisherman. For these reasons, seiners, as seiners, can get "rich enough" but not "good enough."

For the most part, the financial and prestige components of seining are tightly interrelated. As a general rule, prestige occurs in direct proportion to the size of a boat's catch relative to that of other boats.[2] Hence, both money and prestige are the rewards for

catching lots of salmon. Should all the boats do too well in terms of their absolute catch sizes, then the financial gaming self-destructs because the ensuing cannery quotas place definite upper limits on monetary success. The prestige gaming continues, however, as before with one modification: instead of correlating closely with relative catch size, prestige is now gained by catching the quota in the least time.

Despite the close relationship between financial and prestige rewards, it would be a mistake to assume that one is simply the reflection of the other. The interrelationship is tempered by the fact that prestige can be gained through other, non-monetary aspects of seining. For example, a boat which is smartly painted, well cared for, and with new equipment enhances the prestige of its skipper and crew. Similarly, a seiner can earn a reputation as one particularly skilled at repairing torn seines. In a different vein, "ole timers" who were excellent in their day retain their former prestige to the extent that they are considered removed from the ongoing competition. Thus, though clearly related, prestige and money earned from seining are distinct rewards: they have different formal properties, and they may be achieved through different means.

From the skipper's point of view, prestige and financial rewards are mutually reinforcing in the long run. Prestige (the public recognition of success) attracts the more skilled crew members. This, in turn, allows the skipper a wider range of options when deciding where to fish because the better crew is able to work in a wider range of tidal and weather conditions. Also, better crews are faster at retrieving the gear, which means that, other things being equal, they can put their seine in the water more often. These increased crew capabilities are likely to improve the boat's seasonal catch relative to other boats and, thereby, further enhance the skipper's prestige. Barth (1966, p. 10) indicates this type of positive feedback is present among Norwegian herring seinermen, too. In Alaska, such perennially successful boats are called "highliners."

From the crew members' point of view, prestige is valuable not so much for its cash value in the positive feedback system as for the enhancement it brings to their social identity in a variety of social interactions. (Skippers, too, benefit in this regard.) Prestige, unlike money, is a diffuse asset to one's person, giving "bragging rights" in

numerous social contexts. Money can be obtained elsewhere through various off-season activities, but prestige as a seiner means that one has done well in a locally respected vocation. He may or may not be as rich as someone returning from Alaska's oil fields, but he has earned a position of repute in a local tradition. Money buys the groceries, the new car, the extravagant night on the town, but prestige makes all of these social occasions sweeter and persists when the money has been spent.

Prestige is, thus, an important aspect of seining as an occupation. Because competition for it never lets up, because of its long-term significance to the financial rewards (skipper's perspective), and because the crew wants to do well for reasons additional to the money, the prestige component of seining maintains motivation and pressure on the skipper to make wise deployment decisions, in good years and bad, with or without cannery quotas.

The Skipper's Decision and Dilemma

There are two phases to a skipper's decision process before each opening. In the first phase, he tries to make uncertainty less so: he collects information and evaluates the different open areas according to several criteria. The second phase consists of his attempts to synthesize the information he has collected and interpreted in order to produce an informed choice among alternative fishing areas. Throughout this process, he projects to his crew a sense that he is seriously deliberating the questions before him. This is true of both authoritarian and democratic skippers, though in different ways. The crew members do not expect their skipper to reveal step-by-step how he comes to his decision, but they like to imagine that such steps—some sort of computational procedure—do exist.

The following is a list of typical considerations one may hear a skipper discussing with other skippers, his crew, and even himself during the few days before an ADF&G opening begins.

The first group consists of factors that a skipper can determine more easily as his skill improves. The second group contains matters of publicly available information. The third group lists relevant particulars of a boat's hardware and capabilities of the crew. These latter items are specific to each boat at a given time. This list is

ethnographic in the sense that one can hear these topics discussed in bars, on the docks, in cannery offices, on the decks, and in the galleys.

Skipper's knowledge

- the time in the salmon runs

- the navigational dangers in each seining area

- the number of good hook offs in each area

- an estimation of how many other boats will be in each area

- the migration patterns of salmon (at a micro-level)

- an estimation of where the salmon will be in greatest numbers

Public information

- the weather forecast for each area

- the tidal conditions during the opening

- the length of the opening

- how far (travel time) from one open area to another

- where big catches have been made so far in the season

- the ratio of pink to chum salmon caught last opening

Boat/crew particulars

- the mechanical condition of the boat's major equipment

- the navigational equipment on the boat (charts, sonar, radar)

- the skill and attitude of the crew (their speed at retrieving gear and their willingness to work in tough conditions)

Phase I

Upon hearing the ADF&G announcement of a seine opening, a skipper begins the first phase of his decision process. He seeks information to assist him in evaluating his options. His questioning and probing generally follow the items already listed, but those factors boil down to about five basic considerations:

(1) *Hook offs*. (The number of hook offs the skipper knows in each area and how well he knows how to seine there.)
(2) *Crew*. (The skipper's estimation of his crew's and equipment's ability to seine in each area given the expected weather and tides and his crew's willingness to work.)
(3) *Travel time*. (How long [how much fuel costs;] it takes to cruise to each area and how long to get to another if the first should turn out bad.)
(4) *Other boats*. (The skipper's estimation of which areas will be least crowded.)
(5) *Salmon*. (The skipper's estimation of which area will have the most salmon during the time of the opening.)

The open areas are relatively easy to evaluate in terms of *hook offs*, *crew*, and *travel time*. Different skippers may have different evaluations, but each skipper can determine these matters with confidence. Evaluations in terms of *other boats* and *salmon* involve the skipper's total accumulated understanding of the seine fishery as he tries to predict unknown conditions.

Accurate estimations of where other boats will be is important for reasons mentioned earlier: overcrowding at hook offs results in wasted seining time as the boats wait their turns to make sets. Two or three boats can work a hook off and not impede each other. While one boat holds its seine open in the water to catch fish, the others are in various stages of retrieving their gear and hauling in their catches. It takes about thirty to forty minutes to retrieve the seine once the set has been closed to entrap the fish. By informal rules, seiners should not keep their seine open longer than about twenty to thirty minutes if other boats are waiting. Thus, two or three is the optimal number of boats at any given hook off. For each boat beyond this optimum, every boat there will have to wait twen-
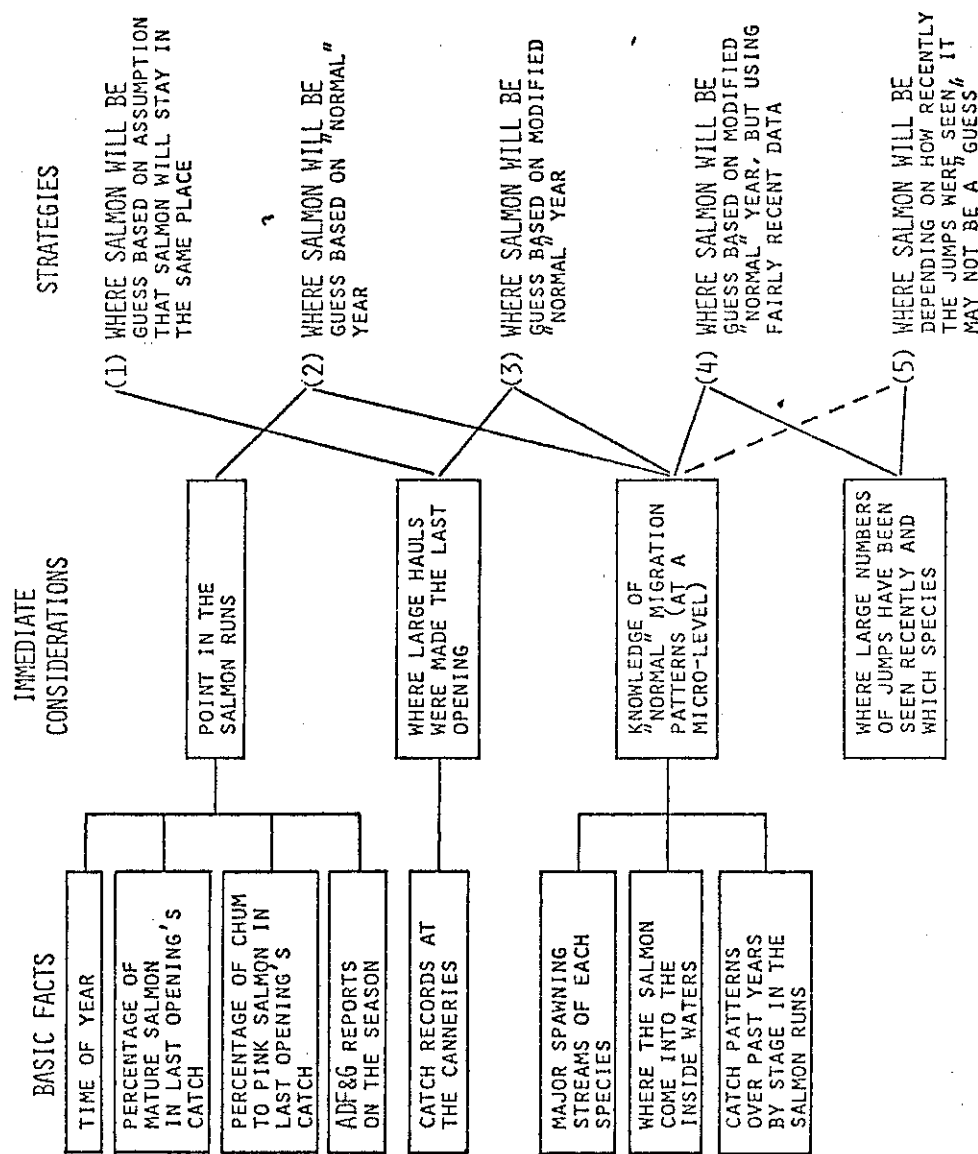
ty to thirty minutes for its turn. Hence, where other boats have decided to seine affects the catch of each. A good prediction of where the salmon are is of low utility if upon arriving at the location fourteen other boats are already in line.[3]

Guessing where other boats will be when the opening begins is a difficult enterprise. Most skippers use three general tactics. The first of these involves extended and informal interrogations of other skippers. The object of these social encounters is to glean where the competition plans to go without revealing one's own plans. Secondly, small groups of skippers (from two to five) may scout the open areas the day before the opening and share information with one another at that time (Gatewood, n.d.). And thirdly, good skippers also calculate where the salmon will be according to procedures they feel most other skippers might use. Thus, the single most important consideration is where one expects the salmon to be and in what numbers. There are about five ways of doing this, judging from may observations of skippers in action and their conversations, and these are depicted in Figure 1.

The first method demands the least skill. After each opening, a skipper finds out where the big catches were made and then he simply goes there the next opening. Though occasionally lucky, this is generally a very poor strategy because the fish are moving all the time.

The second method is good if every year the salmon runs were the same and if skippers knew perfectly the migration routes of the salmon. Neither of these suppositions is true.

The third, fourth, and fifth methods are very similar to one another in basic logic. Each exploits a skipper's acquired understandings of the salmons' "laws of motion" (their migratory patterns). Unlike the second method, which incorrectly assumes constancy in salmon runs, these three procedures use migration patterns in conjunction with "initial state" data to predict the location of moving salmon into the future. The differences among these methods are differences in the quality of their initial state data. The third method, using the last opening's results as its data, may have to predict a week or so of salmon movement. The fourth method uses more recent information on salmon whereabouts from scouting reports. And, the fifth method uses data so recent that its "predic-

STRATEGIES

(1) WHERE SALMON WILL BE GUESS BASED ON ASSUMPTION THAT SALMON WILL STAY IN THE SAME PLACE

(2) WHERE SALMON WILL BE GUESS BASED ON "NORMAL" YEAR

(3) WHERE SALMON WILL BE GUESS BASED ON MODIFIED "NORMAL" YEAR

(4) WHERE SALMON WILL BE GUESS BASED ON MODIFIED "NORMAL" YEAR, BUT USING FAIRLY RECENT DATA

(5) WHERE SALMON WILL BE DEPENDING ON HOW RECENTLY THE JUMPS WERE SEEN, IT MAY NOT BE A "GUESS"

IMMEDIATE CONSIDERATIONS

POINT IN THE SALMON RUNS

WHERE LARGE HAULS WERE MADE THE LAST OPENING

KNOWLEDGE OF "NORMAL" MIGRATION PATTERNS (AT A MICRO-LEVEL)

WHERE LARGE NUMBERS OF JUMPS HAVE BEEN SEEN RECENTLY AND WHICH SPECIES

BASIC FACTS

TIME OF YEAR

PERCENTAGE OF MATURE SALMON IN LAST OPENING'S CATCH

PERCENTAGE OF CHUM TO PINK SALMON IN LAST OPENING'S CATCH

ADF&G REPORTS ON THE SEASON

CATCH RECORDS AT THE CANNERIES

MAJOR SPAWNING STREAMS OF EACH SPECIES

WHERE THE SALMON COME INTO THE INSIDE WATERS

CATCH PATTERNS OVER PAST YEARS BY STAGE IN THE SALMON RUNS

tions" may be only trivially different from the initial state data themselves, in which case the laws of motion become irrelevant.

Only the first and fifth methods do not require some knowledge of salmon migration patterns. In other words, a novice skipper could use either of these methods but none of the other three. Experienced skippers could use all of the procedures, and, in fact, they often do compute estimates using all five.

By whichever means a skipper comes to his evaluations of the different open areas, he still has to synthesize a conclusion based on his considerations. The first phase of his decision process is over when he completes evaluation of his options. This may take a day or two of fact-finding and cogitating. And, up to this point, skippers behave quite rationally—they proceed in fairly definite, regular, and conscious ways. But synthesizing all these considerations presents a problem of a different kind, and it is at this juncture that skippers run into trouble.

Phase II

So long as a skipper compares and contrasts areas with respect to one criterion (variable) at a time, he proceeds rationally and intelligibly. This is clear when listening to the ruminations of a democratic skipper discussing the open areas. Even for the difficult task of estimating where the salmon will be, there are fairly regular procedures to follow. A skipper's consternation, as opposed to uncertainty, arises precisely when he tries to synthesize his diverse considerations and make the decision. Procedures break down. At this point, skippers pass from attempted rational choice to reasonable judgment. They do not know how to compute a selection based on their evaluations. On the other hand, they have to decide something. Further, all this must be accomplished while maintaining an aura of confidence and expertise vis-à-vis the crew. Here is their dilemma.

After the decision has been made, the skipper can, of course, offer reasons to justify his choice. The question arises whether or not the rationalization process is also the decision process. In other words, do skippers decide by eliminating, by blocking out factors, and thus simplifying the synthesis? I suspect there is something to this. However, the reasons offered in rationalizations are seldom

sufficient to clearly differentiate the chosen area from its alternatives. THe logically determining reason is typically something like: "Because that's where I like to fish," or "Because I've always had good luck there."[4]

Once the selection has been made, the skipper still has to live with it. After arriving at the chosen spót, the crew and skipper cruise back and forth along the coastline watching for salmon jumps. If the area is not too crowded and if there are some jumps (compared with other areas scouted), then they anchor the boat very close to the hook off the skipper wants to try in the morning.

By mid-morning of the first day, the skipper and his crew are likely to have made from two to four sets, depending on the number of other boats there. The skipper's decision is by now partially tested. Also, some information on how well boats in other areas are doing spreads via radio communication among boats. Depending on how much fish they are catching, especially as this compares with what they know others are doing and how much they think they should be catching, the crew will be delighted, content, or anxious to go elsewhere. This sets the stage for a different kind of decision from the skipper: whether to stay in the general area he selected in advance of the opening or to travel to another area, wasting valuable fishing time while in transit. Though technically the skipper's decision, at this point the crew's attitude becomes much more important in determining what actually happens. If the season has gone well so far, the crew is much more likely to be passive. If the season has not been good, then the crew will be more active in their indirect communication to the skipper. The skipper's image vis-à-vis his crew is once more at stake, the extent depending on his seasonal record and crew rapport.

The skipper's dilemma is, then, as follows. Either he may persist in trying to compute rationally his decision and be unable to reach a conclusion, or he may abandon decision procedures and trust to his unintelligible but informed judgment. Without the background to employ mathematical decision theories, Alaskan skippers take the latter course and rationalize the results after the fact. How they reach their decisions, as opposed to their rationalizations, remains unclear, even to themselves. It is a matter of unspecifiable skill, of tacit knowledge (Polanyi, 1958). Further, skippers must make their

decisions amidst an intricate web of expectations from their crews. They have to dispose of the problem at hand—deciding where to fish, whether to stay or try elsewhere—while projecting an aura of confidence and expertise.

Conclusions

There is a growing tendency to liken human cognitive processes to the workings of computers. This analogy sometimes takes the form of a technological challenge: how much of what humans do can be replaced with a "thinking" machine?

Much of the work in decision models derives from a comparable impulse. But, instead of seeing to what extent human functions can be replaced, the object is to instruct humans in how to behave more rationally. Hence, theorists construct normative models of decision processes, and "rational" has become perhaps the most mathematicized concept stemming from natural language (e.g., Raiffa, 1968). And, these normative models have ethical ramifications (Brandt, 1979).

Another tactic used in studying decision processes is based on the logic of simulation as a means of testing our understanding. If we can predict the outcomes of decision processes, then it would seem that we know something about those processes. Friedman (1953) argues this point with respect to economics, and Simon (1981) champions the method for cognitive sciences, generally. Examples of this basic approach are widespread in anthropological literature as well, a particularly relevant case being Davenport's (1960) analysis of Jamaican fishing.

My description of Alaskan skippers differs from both of these approaches. I have not been concerned with how skippers ought to behave if they want to be rational, nor have I tried to build a model to predict the outcomes of their decision processes. Rather, I have remained fairly close to the ethnographic particulars and focused upon the social nexus in which skippers make reasonable judgments while trying to maintain an image of rationality. This shift of focus—from normative and outcome-predictive to ethnographic—reveals how people differ from the machines and mathematical models they create. At the general level, Von Foerster (1970), We-

izenbaum (1976), Dreyfus (1979), and Estes (1980) have taken issue with the computer analogy. Here I offer a smaller but related point: people are not always rational even in situations where they are expected to be and want to be. Skippers try and try to make principled, algorithmic, rational choices, but they end up making reasonable judgments. Despite this, or perhaps because of this, skippers get on with their business of converting fish-in-the-ocean into a natural resource.

Notes

1. In saying that prestige is not subject to diminishing returns, I refer to the majority of seiners, who care about their prestige as seiners. For them, prestige is a major prize, and seining is amazingly competitive, very similar to a professional sport. However, there are seiners who, for one reason or another, no longer strive for renown as seiners. Either they do it mainly for fun—a break from their "steady" but dull jobs—or regard themselves as "ole timers" who no longer care to be part of the gaming.
2. Even small differences in catch create winners and losers. For a week, I endured the gloating of a sister boat's crew owing to a difference of five fish. One might think crews would brag about their poundage rather than simple numbers. Poundage determines cash value. However, boats equipped with brine tanks would have an unfair advantage in that case because their fish tend to weigh as much as a half pound more per pink salmon.
3. This is a simplification. Actually, if more boats than the optimum are working a given hook off, they will set up several different rotation lines for different "positions." The preferred position is against the shore and setting toward the flow of the tide. The next line to form is usually the reverse of this preferred position, i.e., against the shore but setting away from the flow of the tide. The situation gets more complicated when ten or more boats are in the vicinity. The simplification in the text does not distort the basic point, however, that two or three boats are the optimum.

4. These are typical addenda to strings of more socially acceptable reasons. They would be inappropriate, from a crew's vantage point, if they were the sole reasons unless the skipper was a very authoritarian type. In that case, they would be regarded as a snappy answer to what must have been an impertinent questioning of his right to decide.

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