

Comparison of Job Satisfaction in Six New Jersey Fisheries: Implications for Management

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New Jersey's marine fisheries exhibit unusual diversity within a small geographical area—contrasting in terms of prey species, gear size and type, trip duration, seasonality, regulatory policies, and income levels. One might expect these differences to engender different patterns of job satisfaction. Based on a survey of several hundred fishermen, the paper compares baymen, oystermen, sea clammers, scallopers, draggers, and longliners with respect to thirty-three components of job satisfaction. Results show significant group-group contrasts in the nonmonetary rewards derived from fishing, even though all those surveyed were clearly *commercial* fishermen. One implication of these findings is that different regulatory tactics should be used if and when additional regulation of the fisheries becomes necessary.

Key words: job satisfaction, anthropology of fishing, fisheries management, New Jersey, work and culture

IN 1984, 1985, AND 1986 we collected data on job satisfaction among commercial fishermen in New Jersey as part of an effort in applied anthropology. We have three simple propositions to make concerning this study.

1. Fishermen's job satisfaction is an important "human benefit" to consider when formulating fisheries management plans.
2. The specific nature of fishermen's job satisfaction varies significantly from one fishery to another and across different statuses on board.
3. Since there are many ways to regulate fishing effort, managers should, other things being equal, select those tactics that preserve as much as possible what fishermen like about their work. These factors will, however, vary from one fishery to another.

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In developing and supporting these points, we first discuss the importance of anthropological and other social science studies to fisheries management and review reasons for focusing on job satisfaction in an applied anthropological endeavor. The second section is an ethnographic description of New Jersey's fisheries. It also discusses the specific methods and goals of our study. The third section presents some results of the job satisfaction survey itself. Finally, we consider how such findings may be put to use when formulating regulatory schemes. In particular, we consider the consequences that fleet versus boat quotas would have on two very different fisheries.

ANTHROPOLOGY AND FISHERIES MANAGEMENT

In 1977 the United States joined most other nations in carving out new national territories from what was once a vast and, for the most part, unregulated commons—the sea. The Magnuson Fishery Conservation and Management Act (Public Law 94-265 as amended in 1983) established a 200-mile fisheries conservation zone (now exclusive economic zone) around the shores of the United States and its sovereign territories. Foreign fishing was to be sharply curtailed and regulated, and fisheries management in the new territories became the charge of regional management councils in coordination with federal and state agencies.

The Act recognized that fisheries management involves much more than fisheries biology. In it, Congress explicitly charged fishery managers and the new councils to consider all "relevant social, economic and ecological factors" when developing fishery management plans. However, data on these aspects of fisheries are not routinely collected by any statistical

agency, leaving it to the councils, the federal government, and independent researchers to fill in the gaps. Thus, anthropologists have the opportunity and challenge to provide useful information and insights on U.S. fisheries.

The Mid-Atlantic region of the Eastern Seaboard (from Connecticut to Virginia) is like many others in that potentially helpful social science findings have not often been incorporated into fishery management decisions or even into plans and accompanying documents. There are many reasons for this omission, including the resilience and resistance of traditional disciplinary biases, as shown in the problems faced by anthropologists who have participated in the regional councils' Scientific and Statistical Committees (Paredes 1985, with comments by Acheson, Leary, McCay, Orbach, Peterson, and Spoehr; Fricke 1985). Another reason is that there is little appropriate, published research to use (Ladner, et al. 1981).

Perhaps more to the point, social scientists have had difficulty finding foci for their work that clearly fit the bioeconomic orientation of fisheries management. The study of job satisfaction among fishermen has been proposed as a highly promising way to focus social science talents and research endeavors intended to contribute to fisheries management (Pollnac and Littlefield 1983), and our study among New Jersey fishermen was designed with this objective in mind.

At the same time, the study was rooted in enduring concerns of anthropology as a field of study. Anthropologists are often interested in how the value systems, world views, and social organizations of different peoples may be related to their modes of production, their ways of making a living. Our research brings the comparative method of anthropology to the study of variability within one general culture, that of North America, and within one general sub-culture or mode of subsistence, commercial fishing. Having controlled for two major variables, we focus upon situational, ecological, and socio-demographic factors that may affect the behavior and attitudes of people engaged in different kinds of fishing.

In the sociological and anthropological literature dealing with fishing as a way of life, there are two kinds of ethnographies or emphases (Acheson 1981:275-276). On the one hand, there are *community studies* of fishing peoples, such as those by Firth (1946), Faris (1966), and Taylor (1983). On the other hand, there are studies that focus on the *activity of fishing* itself, such as those by Davenport (1960), Orbach (1977), Martin (1981), Zulaika (1981), Gatewood (1984), and Durrenberger and Palsson (1986). These two styles of research are demarcated linguistically to the extent that people studying fishing communities tend to identify their specialty as *maritime anthropology*, whereas those focusing more on fishing as an activity often refer to their work as the *anthropology of fishing*.

Estellie Smith's (1977) essay is an attempt to consolidate the field of maritime anthropology by identifying the essential commonalities of fishing cultures from around the world. She suggests that fishing cultures constitute a distinctive type, on a par with hunting and gathering or pastoralist or peasant (see also Andersen and Wadel 1972; Leap 1977; McCay 1981). *Fishing cultures*, thus, refers to whole-culture patterns, in Kroeber's (1948:316) sense, and the question for maritime anthropology is whether communities based on fishing as a major subsistence activity develop a distinctive mode of living in and understanding the world.

By contrast, those interested in fishing as an activity seldom

address the total culture of fishermen. Instead, they concentrate on the specific knowledge, beliefs, and values fishermen use when fishing. The object of study is not so much the total lifeways of fishermen, their onshore as well as offshore behavior, but the *culture of fishing*, which is an occupational or partial culture.

Our study of fishermen's job satisfaction falls into this latter camp. Studies of a wide range of occupational groups have shown significant relations between worker's job satisfaction and their overall health and longevity (see, for example, those reviewed by Pollnac and Littlefield 1983:217-219; O'Toole 1974). Our objective is thus to describe an important aspect of the culture of fishing, especially as this varies with differences in the mode of production among fisheries.

In addition to the general humanistic reasons for being concerned with people's satisfaction with their work, Lee Anderson (1980a) and Courtland Smith (1981) have provided what may be called a dire consequences argument to explain why job satisfaction is particularly important in fisheries management. Unless fishermen's "satisfaction bonus" is taken into account—i.e., unless one realizes that fishermen really like fishing—management plans may well be inefficient. Regulatory policies that presume fishermen are "only in it for the money" are prone to underestimate the perseverance of fishing effort, the possible consequence being over-fishing of the resource.

By including job satisfaction in management objectives, we recognize explicitly that what is economically optimal may not provide the maximal human benefits, because the rewards of work take two forms: monetary and nonmonetary. To see why this is so, compare, for example, H. Scott Gordon's (1954) purely economic model with Courtland Smith's (1981) socio-economic model.

Gordon's economic model, superimposed in Figure 1 on Schaefer's (1954) density-dependent biological model of stock replenishment, shows that the common property nature of marine fisheries will, unless fishing effort is regulated, lead to over-fishing, stock depletion, and profit loss. Without external limitations, the fleet's collective effort will increase to the equi-

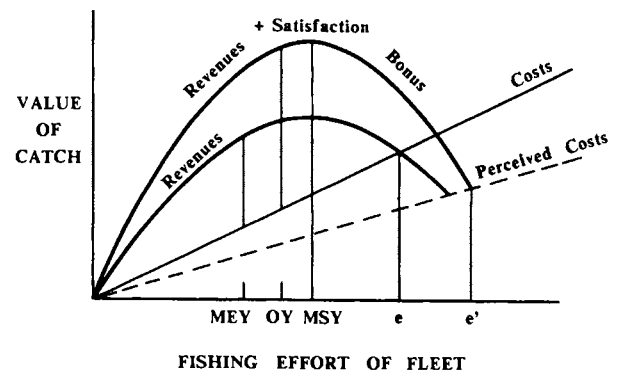


FIGURE 1. ECONOMIC VERSUS SOCIOECONOMIC MODELS OF MANAGEMENT OBJECTIVES

Because fishing tends to be positively valued as a way of life, the "Optimal Yield" occurs at that level of fishing effort where the net returns, including satisfaction bonus, to the factors of production is greatest.

Assumptions: Costs are linearly proportional to effort.

Satisfaction bonus is proportional to revenues.

Price per unit of catch is constant.

librium point where revenues equals costs (e in Figure 1). The point of maximum economic yield (*MEY*) is determined by the level of fishing effort at which the greatest profit is realized, and this is well below the Schaefer's biological point of maximum sustainable yield (*MSY*). Economists argue that profit-maximization is the proper management target and that fisheries must be regulated to achieve this goal, whether through catch quotas, temporal and gear restrictions, limited entry licenses, and/or landing fees.

Smith's socioeconomic model includes Gordon's plus two additional features. Firstly, he notes that fishing is an enjoyable activity—it has intangible rewards in addition to revenues. Secondly, one's perception of the costs involved in an enjoyable activity tend to underestimate real costs. It follows that the natural, or unregulated, equilibrium level of fishing effort (e' in Figure 1) will result in even greater over-fishing than Gordon's model predicts. Further, the level of fishing effort at which the greatest profits obtain is not necessarily the point at which the greatest overall rewards are to be had. The inclusion of satisfaction bonus (i.e., positive nonmonetary rewards derived from the very activity of fishing) indicates that the proper management objective (the point *OY*, or optimal yield) would allow somewhat greater fishing effort than one based on *MEY*. Although management for optimal yield may yield slightly lower profits, this loss is offset by a more felicitous combination of monetary and nonmonetary rewards, one that allows fishermen greater opportunity to do the work they find so enjoyable.

In summary, both models agree that unless fisheries are regulated in some manner—if competition for the common-property resource persists without some controls—they will be exploited at socially suboptimal levels. But because fishing has considerable nonmonetary rewards, fishermen do not quit fishing when purely economic models of fishermen's motivations predict they should. In some cases, they even subsidize their fishing with other income. Thus, if management plans hope to work, then fishermen's satisfaction bonus, in general, must be taken into account and management targets and tactics adjusted accordingly.

Granting Smith's arguments, there remains a long-standing question about the utility of "soft," or non-quantitative assessments of nonmonetary values (e.g., Crutchfield 1975:18; 1979: 751). The problem is that the mathematics of most decision models require interval or ratio-scaled variables and an homogeneous unit of measure. One way of dealing with this problem is to try to quantify nonmonetary rewards by transforming them into dollar values and thereby incorporate them into standard economic models. This strategy has been done extensively in studies of sports fishing: by measuring the transfer or variable costs incurred by sportsfishermen (e.g., Stevens 1969; Gordon, et al. 1973) or by asking fishermen how much they would be willing to pay, hypothetically, for their fishing experiences (e.g., Hilborn and Walters 1977; McConnell and Sutinen 1979; Bishop and Samples 1980; Anderson 1980b).

In this study we do not try to develop a single quantitative measure of job satisfaction. As Pollnac and Poggie (1979; 1988) found in their study in New England fishing communities, job satisfaction is a multi-dimensional phenomenon, making quantification in terms of a single unit-measure very difficult if not impossible (Pollnac and Littlefield 1983). We therefore used a battery of Likert-scale questions to obtain quantitative measures of sociocultural values (see Smith 1981). Our approach

thus focuses on the qualitative components of fishermen's job satisfaction and the relative importance of these in different fisheries.

THE NEW JERSEY FISHERIES SURVEY

New Jersey is a good location for a comparative study of fishermen and fisheries for several reasons. First, the ports of New Jersey are important among the nation's commercial fisheries. For example, Cape May/Wildwood, at the southern tip of the state, is the third largest seafood port on the eastern seaboard of the United States (based on average dollar value of landings since 1974, computed from National Marine Fisheries Service statistics). Second, the fisheries of New Jersey are highly diverse within a fairly small geographical area. Within a radius of fifty miles or so from any port can be found small-scale estuarine clamming and fishing, inshore gillnetting, trap fishing, and dragging, and offshore dredging, trawling, and longlining. And third, the possible confounding effects of community and ethnicity are relatively unproblematic in New Jersey because the various fisheries are dispersed among several multi-fishery, multi-ethnic ports.

The state's fisheries differ from one another in many objective ways, including: (1) the prey, (2) seasonality, (3) trip length, (4) crew size, (5) technology used, (6) method of payment of labor, (7) level of capitalization, (8) level of returns to capital and labor, (9) physical danger, (10) economic risk and uncertainty both in catch and in market value of catch, (11) relations between harvesters and buyers/processors, (12) whether conditions are improving or declining, (13) interfishery mobility, and (14) government regulation.

Our survey includes six fisheries that range along an inshore-offshore continuum—baymen, oystermen, sea clammers, scallopers, draggers, and longliners. The ports represented are Point Pleasant Beach, Barnegat Light, Atlantic City, Wildwood, Cape May, and Port Norris as well as numerous small places from which the bay fisheries take place. We restrict the term "fishery" in this study to the harvesting sector: the vessels, captains, mates, and crew members involved in catching fish or shellfish. Processors, owners, buyers, lobbyists, managers, and others important to the fishery in the larger sense were not interviewed unless they were also working on the boats.

Objective Characteristics of the Six Fisheries

The following brief descriptions of the fisheries included in our survey serve as background to statistical analyses of the job satisfaction data.

BAYMEN. Baymen (or "watermen") are engaged in a variety of estuarine pursuits, particularly bay clamming. In contrast with all of the other fisheries included in the survey, the bayman fishery requires very little capital and can be carried out by one person, working alone. Accordingly, the variable we call "status" in this study, referring to the positions of captain, mate, and crew on board a boat, is not applicable to this fishery, and baymen are thus excluded from analyses using this variable.

A bay clammer can begin with an inner tube, metal basket,

and agile toes. The full outfit is an open boat, in this study averaging 19 feet, powered by an outboard motor, and sets of long-handled shellfish tongs and rakes. Baymen also catch eels, crabs, terrapin, and other estuarine creatures. They are less likely to be full-time fishermen than others in this study because of the relative ease of fishing in the bays and tidal rivers after work or on weekends. Their catches are sold without any processing or special handling to a wide variety of markets that are as widely dispersed as are the baymen themselves. The context of our study in 1984–86 was continuation of a long-term struggle with developers, industrial polluters, and the state over water quality in the bays (see McCay 1985).

OYSTERMEN. The oyster fishery of New Jersey is mostly limited to the Delaware Bay area. During a four to six week “bay season,” oysters are harvested from public grounds from dredge boats (average 69 feet), many of which are very old wooden schooners. The job of culling shells and dead oysters once took crews of six or more men, but is now simplified by machines that reduce crew size to two or three men. Oystermen also work the leased beds on which oysters are taken before they are marketed, but most of the crews work on the boats only during “bay season,” although they may find work in the shucking and packing houses at other times of the year. This is the only fishery with a marked ethnicity: crews are almost always black and captains/owners are almost always white. Our interviews were done by Lawrence Taylor in the summer of 1985, at the onset of a renewed and very serious epizootic that has since killed most of the oysters and reduced the fishery to next to nothing.

SEA CLAMMERS. Sea clammers work on vessels (average 82 feet) equipped with hydraulic dredges that are used to harvest surf clams (*Spisula solidissima*) and ocean quahogs (*Arctica islandica*). Crews usually number four or five men (for more information on labor in this fishery, see McCay and Creed 1987; McCay, Creed and Gatewood 1987). Most vessels are parts of fleets of from two to 17 boats, some of which are owned by companies that also process the meats of the clams. All clams are sold to processors. Sea clammers usually make day trips. The surf clam component of the fishery is heavily regulated; for example, in the Exclusive Economic Zone (3–200 miles from shore) each vessel could fish for surf clams for only 12 hours every two or three weeks during the interview period, 1984–85. At that time the industry was suffering from poor markets and controversy and uncertainty about changes in the management system.

SCALLOPERS. Scallop fishing is also a dredging operation involving large boats (ca. 86 feet). The prey, sea scallops (*Placopecten magellanicus*), are in beds scattered over the entire continental shelf. Scallopers usually stay out two weeks or longer. Their crews are up to 14 or more men working on shifts both managing dredges and shucking scallops while at sea. Ownership of vessels is typically concentrated in small fleets of one to several boats. Another study showed the scallop boats of New Jersey to have a far higher level of short-term or transient crew members than other fisheries in the state (Cattell, et al. 1986:160). Working and living conditions on board these vessels are reputed to be the most difficult. The fishery is not vertically integrated. At the time of this study (1985–86), the fed-

eral government had just begun to regulate the size of scallops taken, and the fishery was beginning to recover from a severe slump in landings.

DRAGGERMEN. The dragger fishery of New Jersey takes a very large variety of finfishes¹ with otter-trawls (see Levine and McCay 1987). The draggers, which average 78 feet in this study, range several hundred miles up and down the Eastern Seaboard looking for whiting, fluke, porgies, mackerel, and other species. Usually, however, they stay within 50 to 100 miles of their home ports on trips that last from one to three days, but sometimes longer depending on the prey and season. Crews include from five to six people. Most of the fish is sold fresh and in the round to wholesalers and to small local processing firms. The vessels are more likely to be owner-operated than in the sea clam, scallop, and oyster fisheries. In 1985 and 1986 the dragger fishery was as always extremely dependent on volatile fresh-fish markets and unpredictable migrations of fish. Some draggermen were involved in joint-venture arrangements with processor-ships of foreign nations for squid, mackerel, and other species. Government regulations had little effect on dragging. This fishery, like longlining (below), fits the classic model of fishing as hunting with all the risks and uncertainties implied.

LONGLINERS. In the longline fishery, crews of four to six people set out 30–40 miles of “long lines” (trawl lines) with baited hooks to catch fish in the deep waters of the outer continental shelf. This fishery began in 1972 when fishermen in the small port of Barnegat Light developed a commercial as well as sports fishery for tilefish (*Lopholatilus chamaeleonticeps*), found 100 miles or so offshore on the slope of the outer continental shelf. It has since diversified to include swordfish and tuna. The longliner boats, averaging 69 feet in this study, tend to be owner-operated. Trips last about one week to ten days, except when fishermen going after tuna and swordfish decide to go to Greenland or Puerto Rico on month-long voyages. At the time of the interviews (1984–86), decline in tilefish landings, uncertainties about tuna and swordfish management, and concern about the movement of the region’s sludge dumping site to the “106 mile site” on the edge of the shelf dampened their optimism. In addition, they—like all fishing vessel owners in this study—were faced with unprecedented bills for hull and personal liability insurance that reflected the high risks of commercial fishing as well as changes in the strategies of insurers (Cattell, et al. 1986).

Method

In conducting the survey, we used the “dockside intercept” method: we went to the fishing docks to find people willing to complete an interview that lasts from thirty minutes to an hour and a half, including filling out our 12-page questionnaire. Interviews were conducted by ourselves, by trained graduate students, and by a colleague. Fishermen were remarkably cooperative; fewer than 10% refused.

The questionnaire is given in two parts. The first part, completed by the fisherman himself, consists of 33 specific job satisfaction questions where the answers range on a 1-to-5 scale from “very dissatisfied” to “very satisfied.” The first part con-

cludes with three overall questions about job satisfaction, two questions about other economic opportunities, and three questions about how his family views his work. The second part, administered by the interviewer, asks a wide range of biographical-demographic questions.

The survey spanned three years, beginning in June of 1984 and ending in May of 1986, with the large majority of interviews being done in the summer months of June, July, and August. A total of 391 commercial fishermen from the six targeted fisheries completed both parts of the questionnaire.

To achieve as representative a sample as possible for each fishery, we tried to interview no more than three individuals from each boat encountered at the docks: the captain and two crew members (including the first mate when possible). If a given vessel had alternating captains and crews, these "shifts" were considered independent for sampling purposes.

Although compliance with these rules-of-thumb was not always feasible, the sample of 391 does conform to the design rather well. The breakdown by fishery and status is as follows. There are 70 individuals involved in bayfishing, a "one-man" operation in which the issues of boat representation and on board status do not apply. There are 50 oystermen (24 captains, one mate, and 25 crew) from 26 different boats. The 68 sea clammers (25 captains, 14 mates, 29 crew) represent 30 boats. Scallopers total 75 fishermen (22 captains, 12 mates, 41 crew) from 24 boats. The 78 draggers (26 captains, 10 mates, 42 crew) come from 34 boats. And, there are 50 longliners (20 captains, 11 mates, 19 crew) working on 19 different boats.

The most general hypotheses of the research are that features of job satisfaction should correlate with objective characteristics of the various fisheries and with biographic/demographic characteristics of the fishermen. In this article, we summarize findings on job satisfaction by two variables: fishery and status on board. As will become clear, both of these independent variables are significant predictors of fishermen's subjective responses to their work. That is, the fishery in which one works and one's status on the vessel create significantly different work experiences (something frequently overlooked in studies of commercial fishing²), and these differences give rise to different levels and patterns of satisfaction.

Demographic Summary

Details of the descriptive statistics on the demographics of our sample are available elsewhere (Gatewood and McCay 1987; 1988). Here we sketch only the general findings.

The respondents are preponderantly of Western European ethnic origins or self-described as "white Americans," excepting the 30 blacks in the study who are involved in oyster dredging in Delaware Bay. About three-quarters are locals, in the sense of being born within the three-state area of New Jersey, Pennsylvania, and New York. Sixty-eight percent are in their twenties or thirties, and only 5 of the 391 are women. Roughly half of the sample are currently married, and of the 60% who have children, the average number of children is 2.47. On average, the New Jersey commercial fisherman has completed 11.5 years of formal education.

Over three-quarters of those interviewed are "full time" fishermen in the sense that their earnings from fishing consti-

tute more than 75% of their annual incomes. The average income is about \$22,400 from an average of 9.5 months of fishing.

There are statistically significant contrasts in education level, age, and income derived from fishing across the six fisheries. Speaking generally, longliners have the most years of formal education and oystermen the least. Oystermen are typically older than other fishermen, and longliners are the youngest group. Clammers, scallopers, draggers, and longliners depend on fishing as their source of income more than oystermen and baymen (ca. 80% versus ca. 60%), and they make considerably more money from fishing as well (ca. \$25,000 versus ca. \$15,000).

Contrasting the same demographic variables across four status categories, there are significant differences with respect to age and fishing income, but not with respect to education level. As expected, captains of fishing boats tend to be older than their crews, depend more heavily on fishing for their incomes, and make more money. An interesting point is that even crew members make more money from fishing than do the one-man baymen operations, even though both groups depend on fishing to the same extent (ca. 68% of their total annual income is derived from fishing).

The six fisheries differ significantly in terms of the size and power of their vessels and in terms of several personnel variables dealing with fishing experience. Of the five "large boat" fisheries, scalloping involves the largest boats, both in terms of length and horsepower, whereas oystering uses the smallest and least powerful vessels. The average age at which fishermen began fishing commercially is roughly the same across fisheries (18.5 years old). Fishermen in the six fisheries contrast markedly, however, with respect to their years of fishing experience, the number of boats they have worked on, the number of fisheries they have tried in their careers, the number of fisheries tried within the previous twelve-month period, and the number of kin who have tried commercial fishing at one time or another. Longlining, in particular, stands out as the fishery for relatively inexperienced crew members to get their feet wet. It is less common for longliners to come from a "fishing family," and they have the fewest years of fishing experience.

Direct Comparisons of Fishing with Non-Fishing Work

As an initial indication of fishermen's levels of job satisfaction, we summarize their direct comparisons of fishing with other kinds of work.

We asked whether they had experience doing other sorts of work and, if yes, whether they think fishing is better, about the same, or worse than their previous jobs with respect to four general concerns: earnings, enjoyment of the work itself, having time for other things, and overall satisfaction.

Roughly 70% of the 315 fishermen who had experience doing at least one kind of non-fishing work responded that fishing is better with respect to their earnings, their enjoyment of the work itself, and their overall satisfaction. Other jobs, however, were better than fishing with respect to having time for other things. The same pattern of responses held true for

TABLE 1. COMPARISON OF FISHING WITH JOB #1 BY FISHERY

Comparison	Fishing is better (%)	They are about the same (%)	Job #1 was better (%)
[F = 7.988, p = .000]*			
Earnings			
Bay (61)	48	18	34
Oyster (35)	63	14	23
Clam (59)	88	7	5
Scallop (56)	71	18	11
Dragger (62)	84	10	6
Longline (42)	66	24	10
[F = .553, p = .736]			
Enjoyment of work itself			
Bay (61)	79	11	10
Oyster (35)	71	12	17
Clam (59)	66	22	12
Scallop (56)	64	23	13
Dragger (62)	71	21	8
Longline (42)	74	16	10
[F = 10.868, p = .000]*			
Time for other things			
Bay (61)	62	20	18
Oyster (35)	46	11	43
Clam (59)	41	15	44
Scallop (56)	11	27	62
Dragger (62)	29	11	60
Longline (42)	17	14	69
[F = .878, p = .496]			
Overall satisfaction			
Bay (61)	82	15	3
Oyster (35)	77	9	14
Clam (59)	70	27	3
Scallop (56)	66	23	11
Dragger (61)	74	16	10
Longline (42)	74	14	12

* Significant at $p < .0125$, i.e., experiment-wise adjusted.

a smaller subsample ($n = 189$) who compared fishing with a second kind of non-fishing work.

When the direct comparisons are broken down by fishery, there are significant differences with respect to the earnings question and having time for other things, but not with respect to enjoyment of the work itself or overall satisfaction (see Table 1). In particular, fishing is less lucrative for baymen, compared to other jobs they have had, than it is for other groups of fishermen. And, 62% of the baymen think fishing is better than previous jobs in terms of having time for other activities, whereas scallopers, longliners, and draggers think exactly the reverse.

Comparing the responses of three status groups—i.e., captains versus mates versus crew (baymen excluded)—reveals significant differences with respect to enjoyment of the work itself and overall satisfaction (fishing vs. non-fishing), but not with respect to earnings or time for other things. Put simply, captains derive relatively more intangible satisfaction from fishing than do their mates and crew, although all three groups like fishing much more than non-fishing work.

A second general indication of fishermen's attachment to

fishing comes to light from their responses to questions about non-fishing economic opportunities.

We asked how long they estimate it would take to find some kind of non-fishing work and how long it would take to find some kind of work that they would enjoy as much as fishing. Response categories were as follows: (1) a few days, (2) a few weeks, (3) a few months, (4) a year or longer, and (5) never. We then computed what may be called the *psychic cost* of leaving fishing by simply subtracting their first response from the second.

Whereas there are significant differences among the six fisheries in terms of their perceived non-fishing economic opportunities and how long it would take to find work as enjoyable as fishing, the psychic cost is roughly the same, irrespective of current fishery. Comparing these matters by status, we find that perceived non-fishing economic opportunity is roughly the same for captains, mates, and crew members. But, captains would experience more of a psychic cost than mates and mates more than crew if they were forced out of fishing.

One last consideration before examining specific levels and patterns of job satisfaction is the image or desirability different fisheries have among fishermen. We asked each person, "What is your favorite kind of fishing, whether you have actually tried it or not?" Table 2A shows the responses broken down by cur-

TABLE 2. FISHERMEN'S FAVORITE KIND OF FISHING

A. Favorite Fishery by Current Fishery							
Favorite Fishery	Current fishery						Total
	Bay	Oyster	Clam	Scallop	Dragger	Long-line	
Bay	52	1	0	1	2	1	57
Oyster	2	20	0	0	0	0	22
Clam	1	11	50	4	2	0	68
Scallop	1	0	2	26	0	0	29
Dragger	4	4	5	22	63	3	101
Longline	4	0	5	11	2	39	61
Gillnet	0	4	1	2	5	1	13
Lobster	1	0	3	1	0	0	5
Purse seine	0	0	0	2	2	0	4
Trolling	1	0	1	0	0	2	4
Other	0	6	0	4	1	1	12
Total	66	46	67	73	77	47	376

B. Favorite Fisheries as Evidenced by "Contentedness" and the Preferences of "Discontented" Fishermen							
	Fishery						"Other"
	Bay	Oyster	Clam	Scallop	Dragger	Long-line	
"Contented" with current fishery (%)	79	44	75	36	82	83	—
Preferences of the 126 "discontented" (%)	4	2	14	3	30	17	30

rent fishery. Roughly two-thirds of the respondents (i.e., 250) are currently participating in their favorite form of fishing, whereas about one-third (i.e., 126) would rather be doing some other kind of fishing. What is interesting here is the different percentages of "contented" fishermen in each of the six fisheries and the preferences of those who are "discontented" with their current fishery (see Table 2B).

Three basic patterns are evident. Dragging, longlining, and sea clamming are fisheries with high percentages of contented fishermen, and they are also fisheries others would like to be doing. Bayfishing has a high percentage of contented workers, but few others are interested in it. Lastly, scalloping and oystering have relatively few contented fishermen, and few others want to do them. These patterns are understandable in light of our previous ethnographic descriptions.

Dragging, longlining, sea clamming, and scalloping contrast with oystering and bayfishing in being larger-scale, open ocean, year round, and relatively lucrative operations. Scalloping differs from its counterparts, however, in terms of the work schedule, i.e., two-week trips on crowded boats with crews working in daily shifts. Thus, although scallopers make good money, the living conditions on board are relatively unpleasant, and other fishermen realize this. Conversely, the Delaware Bay oyster fishery, lasting only a few weeks per year, is not especially attractive to those who want to fish full time and make more money, and many oystermen would prefer to do open ocean fishing, but find entry into such fisheries difficult. Finally, bayfishing, a one-man operation, is attractive to those who value personal freedom and independence more highly than making money. Further, because it involves relatively little capital investment, those who become disenchanted with crew life and the temporal demands of the other fisheries can easily set themselves up as baymen. In other words, the ready accessibility of bayfishing tends to make it the most self-selecting fishery in the sample.

Summarizing to this point, it is clear that fishermen generally like fishing much better than other forms of work they have tried. The strength of these feelings are variable, both by fishery and by status group. They would experience considerable psychic cost were they forced to leave fishing. And, those fisheries with the highest levels of contentedness also tend to be those considered most desirable by discontented fishermen.

These findings should be tempered by noting a possible bias toward satisfaction with whatever occupation one is presently doing. Just as the fishermen we interviewed like their present occupation more than others they have tried, steel workers may enjoy their work in the mills more than previous jobs. Whether such a bias exists or not, it remains true that fishermen are the population most affected by fisheries management, and our survey makes it abundantly clear that they would suffer considerable angst were they forced out of fishing.

Specifics of Fishermen's Job Satisfaction

The specific features of fishermen's job satisfaction were measured by responses to 33 items. The items selected include the 22 used by Pollnac and Poggie (1979; 1988) in their study of New England fisheries and the 26 used by Apostle, Kasdan, and Hanson (1985) in their study of Canadian Maritime fisheries, plus a few additional questions we thought relevant.

Both previous surveys used factor analysis to condense and describe their job satisfaction findings. While we agree that this is a good procedure for revealing the inter-item correlational patterns in a given data set, it makes wider comparisons somewhat problematic. Firstly, the number of factors is strongly influenced by the number of items in the questionnaire; hence, unless everyone uses exactly the same items, comparisons are hard to make. Secondly, although the number of factors and, especially, their item-loadings are sensitive to particulars of a given data set, we know of no inferential statistic to determine whether observed differences among data sets are statistically significant. Thus, for example, it is not clear what conclusions should be drawn from the fact that Pollnac and Poggie's New England study found three factors (with eigenvalues greater than 1.0), whereas Apostle, Kasdan, and Hanson found eight factors in their data set. Finally, if a reason for doing the factor analysis is to compute factorscores for each case, the transformation into standardized values that this process entails obscures the original responses and their interpretability. In summary, as job satisfaction surveys become more common, factor analytic descriptions will make comparisons increasingly difficult. For these reasons, we present our findings in a different form, one that preserves response interpretability.

To reduce the complexity of the multi-item responses, as well as relate them to larger theoretical issues in the study of job satisfaction, we organized the thirty-three specific items according to Maslow's (1954) "hierarchy of needs." Maslow divides people's needs into several broad categories, which, in his view, must be satisfied sequentially. Survival/security needs are the most basic, and their fulfillment is supposed to be necessary before other, higher level needs become much of a concern. Belongingness/esteem, or social, needs are the next most basic. Finally, if the previous needs are fulfilled sufficiently, people require a sense of personal fulfillment and growth, that is, self-actualization needs are at the top of the hierarchy.

In consultation with Thomas Blank and Robert Rosenwein, social psychologist colleagues, and using our ethnographic knowledge of fishing, we assigned each of our items to its most appropriate Maslow category. We emphasize that this is an *a priori* assignment and, thus, allows us to test Maslow's notion of sequential fulfillment.

By-item analyses of variance show that 23 of the 33 specific items evidence significant contrasts in their average levels of satisfaction across the six fisheries at the $p < .05$ confidence level. This customary confidence level, however, does not take into account the number of statistical tests being done. If, for example, twenty analyses of variance (or any other inferential statistical test) are performed, then we should expect one of them to show statistical significance at the .05 level purely by chance. It is thus necessary to correct for the number of tests being done. "Experiment-wise" adjustments are calculated by dividing the customary confidence level by the number of tests.³ Using the more stringent cut off of $p < .0015$ (i.e., .05 divided by 33), 15 items still evidence significant differences in levels of satisfaction. Table 3 shows the average by-item levels of satisfaction for each of the six fisheries, with the items grouped according to their Maslow assignments.

Similar by-item comparisons of the three status groups (the one-man baymen operations being excluded) show fewer contrasts than exist among fisheries. The average satisfaction levels of captains, mates, and crew members differ with simple

TABLE 3. LEVELS OF JOB SATISFACTION BY FISHERY
(items grouped into Maslow's categories)

Item	Bay (70)	Oyster (50)	Clam (68)	Scallop (75)	Dragger (78)	Longline (50)	F prob
Scale = (1) very dissatisfied - (5) very satisfied							
Survival/Security							
Physical demands	3.77	3.73	3.74	3.95	3.83	3.88	.683
Job safety	3.74	3.76	3.46	3.56	3.74	3.55	.284
Cleanliness	3.61	3.92	3.72	3.65	3.85	3.50	.173
Future as a fisherman	3.03	3.61	3.68	3.39	3.36	3.36	.036
Healthfulness	4.30	4.12	3.77	4.09	4.13	4.00	.033
Mental pressure	3.86	3.78	3.43	3.40	3.42	3.46	.022
Peace of mind	4.28	3.90	3.79	3.74	3.90	3.86	.015
Living conditions on board	3.51	3.74	3.82	3.96	4.01	3.84	.012
Predictability of earnings	3.51	2.98	3.57	3.05	2.90	3.08	.001*
Earnings last trip	3.53	3.33	3.94	3.43	2.97	3.50	.000*
Amount of earnings	3.59	3.38	4.00	3.48	3.09	3.72	.000*
Performance of officials	2.40	3.42	2.04	2.18	2.07	2.08	.000*
Time you get to fish	3.74	3.70	2.56	3.60	3.56	3.65	.000*
Crowding on fishing grounds	2.76	3.84	3.45	2.51	2.56	2.46	.000*
(Composite-Index)	3.57	3.66	3.52	3.42	3.40	3.40	.034
Belongingness/esteem							
Community where you live	3.96	3.92	4.16	4.08	4.21	3.98	.289
Competing with others	3.64	3.83	3.82	3.84	4.05	3.94	.052
Fellow workers	3.71	3.90	4.12	3.65	3.88	3.98	.026
Respect as a fisherman	3.24	3.90	3.47	3.32	3.23	3.54	.010
Trip length (dock to dock)	3.81	3.37	3.43	3.20	3.76	3.30	.000*
Time to fishing grounds	3.76	3.46	3.44	3.52	3.35	2.82	.000*
Work schedule (daily, weekly)	3.90	3.38	2.87	3.53	3.23	3.36	.000*
Opportunity to be own boss	4.54	4.11	3.84	3.95	3.88	3.94	.000*
Come and go as you please	4.37	3.94	3.24	3.69	3.74	3.50	.000*
Time away from home	3.83	3.41	3.29	2.70	3.06	2.44	.000*
Time for family & recreation	3.71	3.75	3.21	2.62	2.61	2.42	.000*
(Composite-Index)	3.85	3.72	3.54	3.49	3.54	3.38	.000*
Self-actualization							
Working outdoors	4.57	4.45	4.53	4.45	4.50	4.62	.573
Doing something worthwhile	4.10	3.94	4.13	4.04	4.01	4.24	.387
Identity as a fisherman	3.77	3.98	3.99	3.99	4.10	4.00	.256
Doing deck work	3.63	3.82	3.59	3.72	3.94	3.80	.117
Being out on the water	4.46	4.20	4.34	4.11	4.21	4.14	.084
Challenge	4.17	3.82	4.10	4.16	4.12	4.44	.015
Adventure	4.12	3.75	3.99	4.15	4.16	4.52	.000*
Pitting skill against nature	4.23	3.42	4.04	4.04	4.01	4.16	.000*
(Composite-Index)	4.12	3.94	4.09	4.08	4.12	4.24	.062

* Significant at $p < .0015$, i.e., experiment-wise adjusted.

statistical significance on only 11 items, and only 4 of these achieve experiment-wise significance: performance of officials, pitting skill against nature, competing with others, and opportunity to be your own boss.

Using the assignment of items to Maslow's categories, we computed three composite-indices. These indices are defined as the sum of an individual's responses to constituent items divided by the number of items in a category; there was no weighting of items. Also, when computing a given index, we did not substitute average values for missing data; individuals with missing data on any constituent item were excluded.

Table 3 also shows the average level of satisfaction for the

three Maslow-indices for the six fisheries. The most general point to note is the high levels of satisfaction evidenced in all three areas. In view of Anderson's (1980a) and Smith's (1981) arguments concerning job satisfaction and fisheries management, and contrary to Maslow's notion of hierarchical fulfillment, it is especially interesting that the highest levels of satisfaction occur with respect to the most intangible of rewards, i.e., the category of self-actualization needs.⁴ The only statistically significant contrast among fisheries, however, occurs in the belongingness/esteem index.

Comparing the three Maslow-indices across status groups (baymen excluded), there is no significant difference among

captains, mates, and crew with respect to their satisfaction with survival/security needs. They differ significantly, however, with respect to both belongingness/esteem needs and self-actualization needs, captains being more satisfied than crew, and first mates in between.

The statistical analyses reviewed in this section show that different fisheries, and to a lesser extent the different statuses, evidence very different profiles of job satisfaction. An easy way to get a sense of these profiles is to examine the relative rankings of items for each fishery. Table 4 shows, for each fishery, the 6 items receiving highest satisfaction ratings and the 6 items receiving the lowest ratings.

One discernible trend in Table 4 is that those fishermen who stay out on the ocean for longer stretches of time also tend to appreciate the "romance of the sea" more than do shorter-trip fishermen. Longliners and scallopers, and to a lesser extent druggers and clammers, differ from baymen and oystermen in the satisfaction they derive from the "challenge" and "adventure" aspects of their work. Longliners, in particular, seem to enjoy the strategic aspects of fishing (the hunt for highly mobile and invisible prey), whereas baymen enjoy most the personal independence and freedom their one-man operations provide.

Despite the differences, there are a few aspects of job satisfaction that characterize fishermen in general. "Working outdoors" is uniformly the highest ranking source of satisfaction, and "performance of officials" ranks at the bottom for all except oystermen, who have a long history of successful dealings with fisheries biologists and managers. Similarly, the physical setting and time demands of fishing—that is, being away from family, friends, and recreational opportunities ashore—are regarded as major drawbacks to fishing as a kind of work, except by baymen, who return to port every day.

A similar examination of the items that captains, mates, and crew members find most and least satisfying shows, again, that "working outdoors" is uniformly the most rewarding item and "performance of officials" is at the bottom. All statuses enjoy the challenge or adventure of fishing and dislike the unpredictability of their earnings and the separation from loved ones and/or recreational activities.

The different job responsibilities associated with the status groups are nonetheless reflected in the item rankings. Captains enjoy what might be called the "head game" of fishing and take considerable pride in their identity as fishermen. Mates enjoy the challenge and adventure of fishing, but in a more abstract sense. They also show stronger community attachments and concerns about healthfulness than do their captains. Crew members, who are generally cut off from the important decision-making, include the sociability of crew life (i.e., "fellow workers") among the aspects providing most satisfaction. And, because they are the ones who do the physical labor of shucking or icing as well as the end of day clean up, they tend to resent the work schedule.

Finally, responses to the three overall, summarizing questions (which immediately followed the specific questions) show little difference among the fisheries. On a 1-to-7 scale, where 1 means "fishing is the worst kind of work" and 7 means "fishing is the best kind of work," the average ratings ranged between 5.50 and 5.85, indicating that fishermen are generally quite satisfied. Similarly, when asked, "Knowing what you do now, if you had your life to live over, would you still go into fishing?" the average responses ranged between 2.53 and 2.69

TABLE 4. ITEMS SHOWING THE MOST AND LEAST SATISFACTION BY FISHERY

Most Satisfied	Least Satisfied
Baymen	
1 Working outdoors	28 Predictability of earnings**
2 Opportunity to be own boss**	29 Living conditions onboard*
3 Being out on the water	30 Respect as a fisherman*
4 Come and go as you please**	31 Future as a fisherman*
5 Healthfulness*	32 Crowding on fishing grounds**
6 Peace of mind*	33 Performance of officials**
Oystermen	
1 Working outdoors	28 Time away from home**
2 Being out on the water	29 Work schedule (daily, weekly)**
3 Healthfulness*	30 Amount of earnings**
4 Opportunity to be own boss**	31 Trip length (dock to dock)**
5 Identity as a fisherman	32 Earnings last trip**
6 Doing something worthwhile	33 Predictability of earnings**
Clammers	
1 Working outdoors	28 Time away from home**
2 Being out on the water	29 Come and go as you please**
3 Community where you live	30 Time for family & recreation**
4 Doing something worthwhile	31 Work schedule (daily, weekly)**
5 Fellow workers*	32 Time you get to fish**
6 Challenge*	33 Performance of officials**
Scallopers	
1 Working outdoors	28 Trip length (dock to dock)**
2 Challenge*	29 Predictability of earnings**
3 Adventure**	30 Time away from home**
4 Being out on the water	31 Time for family & recreation**
5 Healthfulness*	32 Crowding on fishing grounds**
6 Community where you live	33 Performance of officials**
Druggers	
1 Working outdoors	28 Time away from home**
2 Community where you live	29 Earnings last trip**
3 Being out on the water	30 Predictability of earnings**
4 Adventure**	31 Time for family & recreation**
5 Healthfulness*	32 Crowding on fishing grounds**
6 Challenge*	33 Performance of officials**
Longliners	
1 Working outdoors	28 Predictability of earnings**
2 Adventure**	29 Time to fishing grounds**
3 Challenge*	30 Crowding on fishing grounds**
4 Doing something worthwhile	31 Time away from home**
5 Pitting skill against nature**	32 Time for family & recreation**
6 Being out on the water	33 Performance of officials**

* Items differing among fisheries with simple statistical significance.

** Items differing among fisheries with experiment-wise significance.

(where 1 means "no," 2 means "maybe," and 3 means "yes"). Despite this general willingness to repeat life's experience, all except oystermen and sea clammers would *not* recommend fishing as a career to their friends.

The discrepancy between assessments of fishing as a good career for oneself and the advice one would give to friends probably reflects respondents' perceptions of larger economic trends within the various fisheries. Despite strong attachments to fishing as way of life, or perhaps because of it, fishermen are generally pessimistic concerning the future of their occupation.

When asked to estimate on a 1-to-10 scale the economic conditions in their fisheries as they were five years ago, as they are currently, and to estimate how they will be five years into the future, all groups evidenced a clear sense that things are getting worse. Thus, recommending fishing as a career to friends would be poor advice. Not only might one lose friends by recommending a career with such uncertain future, but were they to take the advice, this would only aggravate matters by over-crowding the fisheries and accelerating their (perceived) decline.

IMPLICATIONS FOR FISHERIES MANAGEMENT

The major point we have been trying to substantiate is that fisheries differ considerably from one another in their specific components and levels of job satisfaction. We illustrate how such information may be put to practical use in formulating management policies⁵ with the following, and at this time, hypothetical example.

Suppose additional regulation of two New Jersey fisheries were to become necessary, let us say, bayfishing and longlining. Further suppose that two regulatory tactics are being considered—boat quotas versus fleet quotas—and the biologists agree that either one will accomplish the needed restriction of effort if the quotas are properly calibrated. The question is, then, which kind of quota system should become policy.

From the viewpoint of purely economic efficiency, Crutchfield (1979) and Wilen (1979) provide a general argument in favor of the individual boat quota system over a fleet quota, *irrespective* of the fishery. Because the full configuration of fishing effort (e.g., boat size, horsepower, gear type, number of boats, etc.) is not fixed, fleet quotas increase the competition among boats to get their portion of the limited goods, resulting in over-capitalization and profit loss. So long as one considers only economic issues, this argument is quite sound.

But what if we admit to consideration, as Orbach (1978) suggests we do, that fishermen, for whatever their non-profit-maximizing reasons, derive considerable nonmonetary rewards from their work in addition to an income? Crutchfield dismisses this as an important consideration, saying that “surely the same combination of benefits from employment accrues to most occupations—teaching, farming, professional and managerial work, and professional sports come to mind as obvious examples” (1979:751). Yet, from fishermen’s own direct comparisons of fishing versus non-fishing experiences, it is clear that fishermen do *not* derive a comparable combination of monetary and nonmonetary rewards from the other kinds of work they have tried. Those data alone provide ample justification for believing that fishermen are interested in more than just economic rationalization, that they are motivated by more than money.

Given, then, that fishermen are motivated by both monetary and nonmonetary rewards, how does knowing the patterns of job satisfaction in bayfishing and longlining bear on our policy question? Does inclusion of sociocultural data, specific to each fishery, along with the biological and economic considerations lead to different policy recommendations?

From the item-rankings in Table 4, for example, we see that baymen derive relatively little satisfaction from competition and prestige issues. After working outdoors, it is the oppor-

tunity to be one’s own boss, being out on the water, having the ability to come and go as one pleases, the healthfulness, and the peace of mind that top their list of nonmonetary rewards. These reflect the strongly independent nature of bayfishing as key components of satisfaction.

By contrast, longliners derive most satisfaction from the adventure, the challenge, feeling they are doing something worthwhile, pitting their skill against nature, and their identity as fishermen. What these rankings confirm is the fact that longliners regard themselves as “real fishermen,” and they really enjoy the hunt of deep-sea fishing and the competition for prestige it entails.

Given these differences in nonmonetary rewards, bayfishing versus longlining, we may make the following observations. Baymen, whose highest nonmonetary rewards revolve around being fiercely independent, should respond reasonably well to limitations on each boat’s catch. Boat quotas allow each bayman to decide when and where he wants to work, thereby preserving his essential independence, without setting up the conditions that would drive him to increased capitalization. Thus, at least in this fishery, Crutchfield’s and Wilen’s general policy recommendation is congruent with our findings concerning the specific nature of bayfishing’s nonmonetary rewards.

In longlining, however, competition is an essential ingredient of the work experience, and fishermen like it that way. The imposition of boat quotas would substantially diminish this aspect, but fleet quotas would not. Thus, provided over-capitalization is controlled through other regulations (such as limitations on boat size and horsepower), the fleet quota system would be more compatible with the nature of job satisfaction among longliners. Contrary to the economists’ context-free argument, here then is a fishery in which the configuration of nonmonetary rewards would argue for a management plan built around fleet quotas.

To summarize, the logical connection between fishermen’s job satisfaction surveys and fisheries management is as follows.

1. There is more than one way to skin a cat, and there is more than one way to regulate fishing effort.
2. Given alternative regulatory schemes, and other things being equal, the one that preserves as much as possible what fishermen like about their work, the one that takes account of the full range of occupational rewards, is the better policy. This is for two reasons:
 - a. Its adoption may cause less resentment among the fishermen, which in turn means they should be less likely to try and circumvent the regulations.
 - b. Employing such criteria in formulating regulatory policies is more congruent with the central charge of fisheries management, which is management for optimal human benefits.
3. Thus, if we know the components of job satisfaction in a given fishery, this information can be used to select more appropriate regulatory policies, when and if additional regulation becomes necessary.

CONCLUSIONS

Our survey of job satisfaction in six New Jersey fisheries reveals several general points about the culture of fishing. First, fishermen derive a considerable satisfaction bonus from their

work. Fishing is not merely a means to an end, it is intrinsically rewarding. This shows up clearly when fishermen compare fishing with other work experiences and in the fact that fishermen are much more satisfied in terms of their self-actualization needs than they are with social or survival needs. Fishing is not only a livelihood, it is a way of life.

Second, despite a core of similar responses, the objective characteristics of different fisheries give rise to strongly significant contrasts with respect to a variety of specific job satisfaction items. These distinctive profiles are obscured by global, summarizing questions, but come to light when fishermen are asked a wide variety of specific questions. In other words, job satisfaction is truly multi-dimensional and attempts to reduce it to a single unit-measure are ill advised.⁶

Third, one's status on a boat significantly affects the nature of job satisfaction. In very broad terms, the more one is involved in the strategic aspects of fishing and has control over the means of production, the more rewarding the experience.

We hope these points regarding *variability* in and among fisheries will lay to rest the notion that fishermen, or even commercial fishermen, are a homogenous group. Although perhaps useful when comparing fishing with other occupations, such a crude categorization glosses over very significant differences (see, also, Miller and Van Maanen 1979). The specific harvesting techniques, work schedules, and divisions of labor associated with different fisheries, as well as one's status on board, give rise to distinctive subjective responses.

Social scientists should take this diversity into account when describing the culture of fishing. So, too, in the applied context of formulating regulatory policies, managers should consider not only how to achieve their conservation and economic goals, but also the specific nonmonetary rewards of fishing *as these vary* among different fisheries. Because the total configuration of rewards is fishery-specific, it is both naive and mistaken to think there is a single, best way to regulate fishing effort, for there is no regulatory tactic that applies equally well to all marine fisheries.

NOTES

¹ In the Mid-Atlantic region, "finfish" refers to vertebrates as opposed to bivalves or mollusks. It may or may not refer to crustaceans such as lobsters.

² There are, of course, some noteworthy exceptions to this generalization. Miller and Van Maanen (1979) draw attention to critical contrasts within the occupational group of "commercial fishermen." Similarly, Pollnac and Poggie (1979), who initiated survey research on fishermen's job satisfaction, include fishery, in the guise of an inshore-offshore categorization, and status on board in their analyses. The two variables play a more central role in Binkley's (1987) recent study of Nova Scotian offshore fishermen.

³ We thank Donald T. Campbell for drawing our attention to the concept of "experiment-wise" adjustments to statistical confidence intervals.

⁴ This replicates a point noted by Pollnac and Poggie (1979; 1988), who found that their Factor III (which they label "High Level Needs") is the strongest predictor of whether New England fishermen would go into fishing again if they had their lives to live over.

⁵ It perhaps needs to be emphasized that our intention is to address the question of how job satisfaction data may be put to use in the process of policy development, that is, as part of the pre-implementation impact assessment. This is not to deny that such data may also play

an important role in *post facto* evaluations of already implemented policies.

⁶ This point applies equally to translations of nonmonetary rewards into dollar values. While such conversion may be necessary to fit overall levels of job satisfaction into economic optimization equations, it is guaranteed to obscure qualitative variations.

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