Feature

Participation by Women at Recent Annual Meetings of the AFS

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ABSTRACT

Over the past few years, women have become increasingly visible at annual meetings of the American Fisheries Society. In 1987, women were first authors of only 5.9% of papers presented at the annual meeting, even though membership was approximately 8.7% female. By 1991, however, women were first authors for 11.9% of the papers presented and the membership was 11.8% female. Two trends appear to account for the change: women volunteered to speak in contributed paper sessions in higher proportions in 1991, and more women organized special symposia and invited other women to speak in the sessions. Increasing participation by women in AFS leadership roles is an efficient way to increase participation by women at large.

The recent addition of an Equal Opportunities Section to the American Fisheries Society (AFS) has generated some interest in the degree to which women and minority members participate in Society activities. In a 1982 survey of female AFS members, most respondents expressed a desire to be more active in the AFS (Moffitt 1983). This interest is parallelled in other professional societies, notably the Ecological Society of America (ESA), whose members work in disciplines related to natural resources. These professions have traditionally been dominated by white male members, but are increasingly attracting women and minority members.

Several analyses (e.g., Cole and Zuckerman 1987; Loehle 1987; Sih and Nishikawa 1988) have compared publication rates for men and women. Cole and Zuckerman (1987) found that women generally publish fewer papers than do men throughout their careers. In their analysis of publications in major ecological journals, Sih and Nishikawa (1988) found that women members of the ESA do not publish significantly fewer primary journal articles than do men, but that women publish fewer critiques of papers. Authors of these studies have offered, but not substantiated, several explanations, including sex discrimination, the relatively young average age of women in scientific professions, and lower aggressiveness on the part of women.

Presentations at annual meetings are another important way that members participate in professional societies and gain experience and stature in their profession. Professional meetings are an opportunity to present research results and exchange ideas before considerable effort has been invested in manuscript preparation. At most professional meetings, papers are either offered in contributed paper sessions or are presented by invitation in planned symposia. In general, authorship of voluntarily contributed papers should represent the active membership of a society. Invited papers represent some measure of stature gained because invited speakers are identified by organizers from their past contributions. However, invited speakers must be remembered by those who extend the invitations. Some have suggested that men may be more likely to forget the contributions of their female colleagues when invitations are made, and that women are more likely to remember other women (Gurevitch 1988). Gurevitch (1988) compared presentations by men and women in invited and contributed sessions at the 1987 annual meeting of the ESA and found that women were invited to present in symposia less frequently than they offered contributed papers, especially if symposium organizers were all men. She also found that when women were among symposium organizers, women were invited to speak in the same proportion as female first authors in contributed sessions. Thus, she found some evidence that men discriminated against women, intentionally or not, and that women did not discriminate in favor of their gender in the process of organizing symposia.

At the annual meetings of the AFS, both contributed (voluntary) and symposium (invited) sessions are held. The process by which papers are accepted for the two types of sessions appears to be similar to that used by the ESA. Papers are assigned to contributed sessions based on subject matter, and because few submitted abstracts are rejected, authorship should represent a sample of the membership that attends annual meetings. When a symposium is proposed for the annual meeting, one or more organizers invite colleagues to submit abstracts and the organizers generally select papers for presentation in the session. In practice, one or more appropriate papers may also be referred by the meeting program chair, but these represent a small part of the session. When symposia are organized by men only, do they invite their female colleagues in proportions that approximate the membership? If women are among the organizers, are they more likely to invite other women?

This paper presents an analysis of the participation by women in the 1991 annual meeting of the AFS. I repeated the analysis for the 1987 meeting of the AFS to determine whether participation at AFS meetings had changed over the last few years and to compare participation at this AFS meeting to participation at the ESA meeting in 1987. My objectives were: (1) to compare the percentages of women

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making presentations at annual meetings to percentages in the general membership; (2) to compare percentages of women authors in contributed and symposium sessions; (3) to determine whether women were more likely to be invited to participate in symposia if there was at least one woman among the organizers; (4) to compare recent (1991) rates of participation with those a few years ago (1987); and (5) to compare the rate of participation by women in AFS meetings with those of women in other professional societies.

Methods

I duplicated closely the methods described by Gurevitch (1988). The published program and abstracts were the sources of data for each year analyzed; I made no attempt to incorporate data representing any last-minute changes in the programs. Poster, panel, and workshop sessions were not included in the analysis, nor were the brief introductory or summarizing discussions in individual sessions. In 1991, several plenary speakers were included on the program, but were not included in this analysis because their selection was intentionally biased by gender (in favor of women; L. Nielsen, Virginia Tech, personal communication). Full- and half-day sessions were each treated as single sessions.

First authors were of primary concern in this analysis because in most cases these were the people who were invited and actually presented the papers. In the discussion that follows, first authors are also called speakers or presenters. Second authors were also included because they presumably played a significant role in development of papers. In some cases, an invitation to present may have been extended to the second author, who then elected to feature a colleague as first author. Third and subsequent authors were not common and were excluded from my analysis.

Gender was determined for each organizer (symposia) or moderator (contributed paper sessions), first author, and second author based on first names found in the abstracts, in the AFS Membership Directory, or in the *Directory of North American Fisheries and Aquatic Scientists* (McAleer 1987). When directories were consulted, care was taken to insure that initials and addresses matched. In most cases, I was able to determine the gender of individuals by first names. Where gender could not easily be assigned based on the first name (e.g., gender-ambiguous names like Kim, Terry), I did so only if I or my informants knew the person. I was able to assign gender to all organizers and moderators and to about 95% of authors.

Results of the 1991 membership form "check off" (Claussen and Fabrizio 1992) were used to determine the percentage of female AFS members in 1991. To estimate the composition of the 1987 membership, I randomly selected 10 pages from the 1987 Membership Directory and counted the number of male and female members on each page. A random sample of 20 pages from the 1990–91 directory was selected to validate the method. Approximately 850 individuals were sampled from each directory. I estimated the 1987 membership to be 8.7% female and the 1991 membership 11.8% female; the latter figure was exactly equal to the estimate of 11.8% female members determined from the 1991 AFS membership forms (Claussen and Fabrizio 1992).

Participation at the 1991 Meeting

Approximately 350 papers were organized into 23 symposia and 16 contributed paper sessions at the 1991 AFS annual meeting. Six of the symposia had one woman among the organizers; in no case were two or more women involved in organizing a single symposium. Likewise, six moderators of contributed paper sessions were women.

In the contributed paper sessions, 12.5% of 112 first authors and 5.1% of 79 second authors were women (Table 1). Clearly, women participated as first authors in numbers that closely matched their membership in the Society. Many papers in contributed sessions were presented by students or entry-level scientists; second authors were often supervisors or major professors of presenters. Given historical trends in composition of the Society, a lower representation of women as second authors in contributed paper sessions was not surprising.

Most papers were presented in symposium sessions (Table 1), and the number of papers was large enough to analyze authorship separately for sessions with only male organizers and sessions with at least one female organizer. In sessions with only male organizers, 9.8% of first authors and 9.3% of second authors were women, less than the percentage of women in the membership. When at least one woman was among the organizers, women were first authors for 16.1% of the papers and second authors for 22.2%. This last figure should not be considered strong evidence for discrimination in favor of women because only 27 papers in these sessions had second authors. Overall, women were first authors for 11.6% and second authors for 12.4% of the symposium papers.

Among symposium sessions with women organizers, all sessions had at least one female author. Furthermore, although the female organizer was sometimes also an author, at least one other woman presented a paper in five out of six of these sessions. In contrast, in five sessions (out of 17) organized by all-male groups, there were no women speakers. All sessions, whether a woman was among the organizers or not, included men among the speakers, and in no session did female speakers outnumber male speakers.

Table 1. Number (percentage) of men and women first and second authors who presented papers at the 1991 AFS meeting.

	First authors		Second authors	
Sessions	Female	Male	Female	Male
Contributed paper sessions	14 (12.5)	98 (87.4)	4 (5.1)	75 (94.9)
Symposium sessions	26 (11.6)	199 (88.4)	14 (12.4)	99 (97.6)
All male organizers	16 (9.8)	147 (90.2)	8 (9.3)	78 (90.7)
Female among organizers	10 (16.1)	52 (83.9)	6 (22.2)	21 (77.8)
Overall	40 (11.9)	297 (88.1)	18 (9.4)	174 (90.6)

At the 1991 AFS annual meeting, women generally participated in percentages comparable to their representation in the membership. When only men organized a symposium, women were underrepresented, but women were overrepresented as authors in symposia that had women among the organizers. Women were also overrepresented among symposium organizers (16.7%). Women were most clearly underrepresented relative to AFS membership as second authors, and this may reflect historical trends.

Participation at the 1980–1990 Meetings

In 1987, although AFS membership was estimated to be 8.7% female, women were first authors of only 5.9% and second authors of only 4.4% of papers presented at the annual meeting. Only 22 papers were presented in four contributed paper sessions, and of those only one first author and one second author were women. Twenty-six symposia were held at the 1987 meeting, but none of the organizers were women. Therefore, I could not evaluate the effectiveness of women session organizers in selecting female authors. Women were underrepresented, relative to their membership, as first authors (6.0%) and second authors (4.1%) in symposium sessions.

Because the presence of women organizers appears to be associated with greater numbers of female authors in symposia, I decided to look at historical trends in women's participation as symposium organizers for the years from 1980 through 1990. Over this period, the number of symposia increased more than did the number of contributed paper sessions (Figure 1). Before 1986, only one woman was involved in organizing a symposium (in 1983) and the number has increased since that time. The greatest increase in number of female symposium organizers occurred between 1988 and 1989. Between 1980 and 1988, no more than two women moderated contributed paper sessions in a given year, and in 1980, 1981, and 1985, there were no female moderators of contributed paper or symposium sessions.

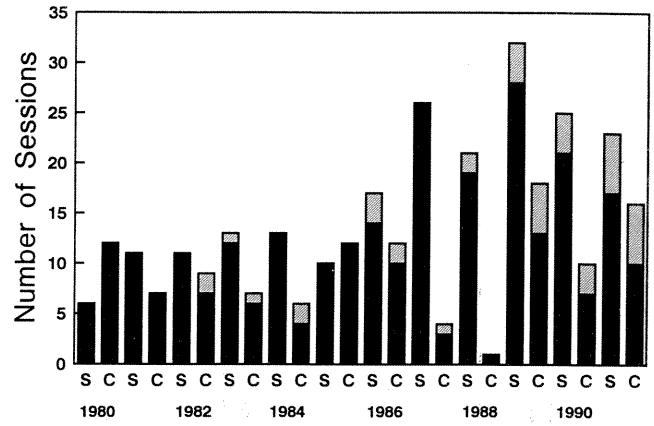

Figure 1. Number of sessions at each annual meeting 1980–1991. Height of bars represents total number of symposia (S) and contributed paper (C) sessions for each year. Solid portions of bars are numbers of sessions with exclusively male organizers or moderators (for contributed paper sessions), and hatched bar sections are numbers of sessions with a woman organizer or moderator.

Discussion

These results differ somewhat from Gurevitch's (1988) analysis of the 1987 ESA meetings; she found that women were invited to participate in symposia less frequently than they presented contributed papers and that women authors were far less likely to be invited when only men were symposium organizers. The disparity between percentages of women in the ESA membership in 1987 (19%; Travis 1989), speakers in contributed paper sessions (26.9%), speakers in symposia with women organizers (22.6%), and speakers in symposia with only male organizers (6.9%) was much greater than I observed for the AFS in either 1987 or 1991. In 1987, the percentage of women authors at the AFS meeting was less than the percentage of female members, but there was no difference between percentages of female authors in contributed and invited sessions as there had been at the ESA meeting of the same year (Gurevitch 1988).

At the 1991 AFS annual meeting, women were invited to present papers in symposium sessions as frequently as they offered papers in contributed sessions. The tendency of exclusively male symposium organizers to not include women authors was offset by a tendency of symposium organizers to favor women authors when at least one organizer was female. Participation by women at this meeting compares favorably with that at the 1991 annual meeting of the Botanical Society of America (BSA), where 35.7% of symposium papers and 33.3% of contributed papers were presented by women (J. Gurevitch, State University of New York at Stonybrook, unpublished manuscript). The BSA is a professional society with substantial female membership (Langenheim 1988). At the BSA meeting, women were organizers of five of nine symposia and 46.6% of speakers in those sessions were women, compared to only 31.7% in sessions organized only by men (J. Gurevitch, State University of New York at Stonybrook, unpublished manuscript). In both the AFS and BSA, women organizers clearly are a positive force in increasing the participation of women speakers at annual meetings.

Participation by women at AFS meetings, both in contributed paper and symposium sessions, increased between 1987 and 1991. Most encouraging is that, although participation by women in 1987 was apparently less than would be expected from the membership, by 1991 women were participating, overall, in numbers commensurate with their membership. This increase appears to be due to two underlying trends: (1) in 1991 women volunteered to speak in contributed sessions in higher proportions, relative to membership, than they did in 1987; and (2) women are becoming organizers of symposia and are more active in deciding who will be invited to present papers. Gurevitch (1988) also found increases in the percentage of women symposium organizers at ESA meetings over the period from 1983 (8.6%) to 1987 (25%). In both the AFS and ESA, the increase in female symposium organizers was accompanied by an increase in the percentage of female speakers in symposia. However, the percentage of women speakers at ESA meetings increased between 1987 and 1991 for both symposia (from 14% to 17.7%) and contributed paper sessions (from

26.9% to 32.8%) in spite of a dramatic decline in female symposium organizers (J. Gurevitch, State University of New York at Stonybrook, unpublished manuscript). Clearly, male ESA symposium organizers in 1991 invited a larger percentage of women authors than they did in 1987. Although all-male groups of symposium organizers in AFS also invited more women speakers in 1991 than in 1987, there may remain a tendency for some organizers to discriminate against women authors when organizing symposia. Alternatively, some subdisciplines that are the subjects of certain symposia may have fewer female practitioners than expected from the membership at large.

I was one of the female symposium organizers for the 1991 AFS annual meeting and found that my male co-organizer made an effort to include women among the invited authors. In this case, I suspect that he would have made the effort without my influence. Thus, I cannot determine whether the higher percentage of women authors in symposia with female organizers was a direct result of women organizers calling on other women when they organize a session, an indirect influence that these women had on their male co-organizers, or simply a consequence of some men who were inclined both to organize symposia with female colleagues and to invite women to speak. In all likelihood, all three processes were involved. Moreover, some groups of exclusively male organizers successfully recruited female authors. Most symposia consist of 10–12 papers; if every symposium includes a minimum of one or two women speakers, the goal of increased participation by women can be achieved. Perhaps an increase in participation by minority members can be achieved with a similar effort.

The trends presented here are encouraging for those who wish to see greater participation by women in AFS. Organizers of the 1991 annual meeting effectively reached the goal of participation by women that approximates female membership in the Society. Many of the women I observed at the 1991 meeting were young women just beginning their careers. Surely these women will continue to be active and to increase the role of women in AFS. Although continued vigilance on the part of all members is required to promote the professionalism of women and minority members in the Society, women and minorities also must actively pursue visible positions. This study shows that women are playing an active role in this aspect of AFS membership, and we can assume that efforts to increase female membership will result in commensurate increases in participation at annual meetings. Women are becoming more active both as authors and as session organizers. It is in the latter role that women can be especially effective in encouraging more women to become active and in encouraging men to consider their female colleagues as potential authors for invited symposia.

Acknowledgments

Brenda Norcross first brought this idea to the attention of AFS Executive Director Paul Brouha, who passed it on to 1991 Program Chair Don Orth, and on to me. I thank all of the informants who graciously answered my inquiries and offered suggestions, and I thank Eric Hallerman and an anonymous reviewer for constructive comments on the paper. A special thanks to Don Orth and Beth McAleer who provided the old AFS abstracts for this analysis.

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