

We Don't Care, Professor Einstein, the Instructions to the Authors Specifically Said *Double-Spaced*

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Abstract.—You can ensure that your relations with a scientific editor will be adversarial by following three basic rules. (1) Submit a manuscript that is inappropriate for the journal. (2) Prepare the manuscript in a style that deviates—but not consistently—from accepted standards of form, syntax, and spelling, and submit barely legible photocopies. (3) When critical reviews are received, treat them as an affront to your professional image and respond accordingly. On the other hand, relatively little effort by you will contribute much toward establishing and maintaining cordial relations with the scientific editor. Being objective about your manuscript and choosing the appropriate outlet, preparing your submission copy carefully, and dealing constructively with the review–revision cycle will more than pay back the time invested. This should be obvious, but an amazing number of authors fail to pay such attention, and thereby prejudice the acceptance of their manuscripts.

For most scientific journals, the editor wields absolute power. For instance, answering to no one, the scientific editor has the power to reject your manuscript without review (“Dear Author, Although your manuscript dealing with an application of the unified field theory to age and growth in fishes seems interesting, I am afraid I have recently received several manuscripts on exactly the same subject . . . ”), the power to send your manuscript out to the most savage of reviewers (“Dear Dr. Legree, The author of the enclosed manuscript thinks it has merit . . . ”), and the power to interpret the comments of a reviewer in the worst possible light (“The reviewer, in raising the remote possibility that sunspots affect . . . , forces me to request that you repeat . . . ”).

Given the potential of such egregious application of power and the somewhat capricious nature of the review process, it behooves you to cultivate and maintain cordial relations with the scientific editor. Short of stuffing \$100 bills into the submission package, how do you do that? I, from the vast perspective of almost 2 years as a scientific editor for the *Fishery Bulletin*, and my colleague will advise you how to maintain a productive association with the scientific editor and thus facilitate publication of your manuscripts. Our purpose is to examine the submission–review–revise–acceptance process, concentrating on what we see as your responsibilities as author. We deliberately avoid discussing the responsibilities of the scientific editor. After all, when you deal with dictators, it makes good sense to avoid hectoring them about their shortcomings. If you violate certain basic, commonsense rules, you will find yourself dealing with an unenthusiastic, hostile, or “imposed-on” editor; none of these personas is conducive to rapid publication of your manuscript.

Choosing the Appropriate Outlet

To ensure that the scientific editor will be enthusiastic about receiving your manuscript, you must choose the appropriate outlet. Along with an exponential increase in the overall number of journals (there are now at least 40,000 scientific journals around the world: Garfield 1988), the number of serials related to fishery topics has also increased. From 3 to 17 new fishery titles have been added per year, worldwide, since World War II (Maclean 1988). With such a large selection, it should be easy to find a journal eager to publish your work. Presumably you know the length and content of your manuscript. (And, of course, it is competent science.) The difficulty is judging objectively its value as a contribution. Is it a data report from the results of a baseline survey or does it describe a fundamental conceptual advance? That is, what is its contribution level? Objectively judging your own work helps you to select the outlet; it is hardly productive to spend time arranging the data report of your baseline survey in the format and style for submission to *Science*. Most authors do not make such gross errors in judgment; nevertheless many authors seem unsure of the value of their manuscripts. We spend a substantial amount of time "previewing" manuscripts in response to authors doubtful of their contribution's appropriateness for our journal. For all but the most novice of authors, this step should be unnecessary and tends to prejudice the editor. When authors ask an editor if a manuscript is appropriate for a journal, they usually seem to be saying, "This may not be the most interesting manuscript in the world, but would you consider it anyway?" Or, "I know this is in miserable shape, but do you think it is worth more effort on my part?" The best course is to dispassionately judge the quality of your own manuscript and carefully choose a journal that you know, from past articles, publishes manuscripts of a similar contribution level. Never let a scientific editor see a product of yours that is not up to the quality of most of the manuscripts that he or she sees.

Choosing the appropriate journal requires that you know something about it. Familiarity with its content should help you decide. We assume you have read it. Is your manuscript similar in scope and contribution level to those published in recent issues? The policy statements in the instructions to authors also help. Have you read them? We suspect that a considerable number of authors neglect to do so. *Fishery Bulletin* gets a surprising number of manuscripts that include original drawings even though the instructions clearly state that they should not be sent until requested.

These preliminary investigations allow you to decide if the level of contribution of your manuscript is sufficient for the journal. The scientific editor will then support its publication, if not enthusiastically, at least neutrally. These investigations also help you put your contribution in perspective with other articles previously published in the same journal. It is important that this is made clear to the scientific editor. "My article is a logical extension of the questions raised by Blank et al. published in 19XX."

Now that you have decided that the prospective journal publishes papers similar to your contribution, is the journal itself adequate for your purposes? At the outset, we suspected that there might be three areas of interest to authors regarding potential outlets for their manuscripts: (1) circulation, (2) number of manuscripts submitted and rejected per year, and (3) journal impact or influence. The relationships (or the unexpected lack of them) that we discovered are

TABLE 1.—List of journals from which information was obtained on page charges, circulation size, number of manuscripts submitted per year, and proportion of manuscripts rejected. (The scientific editors or editorial assistants were contacted by telephone or letter.) Journals marked with an asterisk impose page charges.

<i>American Zoologist</i>
<i>Aquaculture</i>
<i>Biological Bulletin*</i>
<i>Bulletin of Marine Science</i>
<i>California Fish and Game*</i>
<i>Canadian Journal of Fisheries and Aquatic Sciences*</i>
<i>Canadian Journal of Zoology</i>
<i>Copeia*</i>
<i>Environmental Biology of Fishes</i>
<i>Fishery Bulletin</i>
<i>Journal of Crustacean Biology*</i>
<i>Journal of Fish Biology</i>
<i>Journal of Mammalogy*</i>
<i>Journal of Wildlife Management*</i>
<i>Journal of Experimental Marine Biology and Ecology</i>
<i>Journal of Shellfish Research*</i>
<i>Limnology and Oceanography</i>
<i>Marine Biology</i>
<i>Marine Mammal Science*</i>
<i>North American Journal of Fisheries Management*</i>
<i>Physiological Zoology</i>
<i>Progressive Fish-Culturist*</i>
<i>Science</i>
<i>Systematic Zoology*</i>
<i>Transactions of the American Fisheries Society*</i>

intriguing, but the analyses have been left at a very superficial level. As a result, our interpretations are very speculative. Our goal was not so much to draw conclusions about the publishing process but rather to present information that an author might wish to investigate further and in greater depth for his or her own particular situation. We collected information by an informal telephone survey from the editors of various journals that American Fisheries Society scientists probably read and publish in (Table 1). The list is a casual selection of publications on our current journal library shelf. The editors or their editorial assistants were asked about page charges, individual and institutional circulation, number of manuscripts received per year, and the proportion of manuscripts rejected. We also consulted *Journal Citation Reports* (Institute for Scientific Information, Philadelphia, Pennsylvania) for data dealing with journal influence.

Page charges are like a regressive tax; their burden is greater on less well-funded programs. Consequently, investigators with poor funding may wish to avoid publishing in journals that impose page charges (Table 1). However, some editors of journals that impose page charges disclosed to us that an author can sometimes negotiate to have the charges reduced or eliminated.

Circulation may be important to an author wanting to do more than simply publish. Surveys show that scientists primarily read the journals to which they subscribe (G. Kean, Allen Press, Inc., personal communication), and neglect other journals in their institutional library. If this is true, authors seeking maximum exposure should publish in journals whose subscription fees are low and that consequently have developed large circulations to individual subscribers. In contrast are those journals that could be classified as "commercial," typified

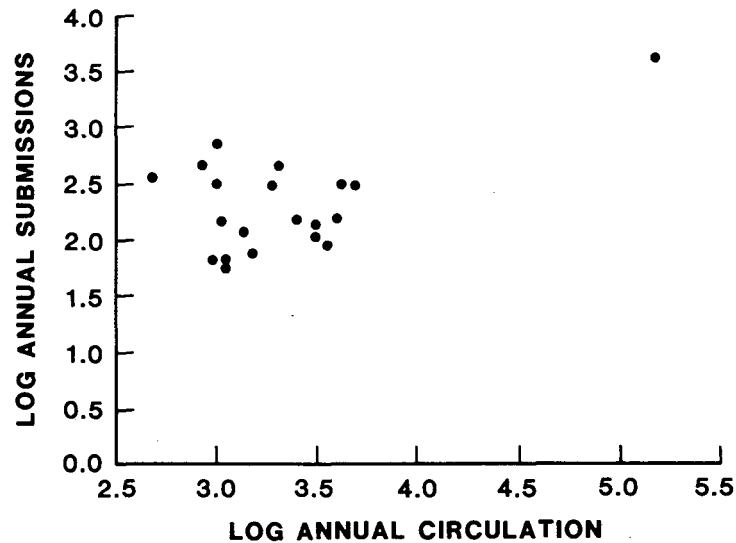


FIGURE 1.— Log_{10} annual circulation in number of issues versus log_{10} annual submissions in number of manuscripts for 20 scientific journals. *Science* is represented by the extreme point (total annual circulation = 150,000; total annual submissions = 4,000).

by *Aquaculture*, *Marine Biology*, and *Journal of Experimental Marine Biology and Ecology*. These are marketed to institutional subscribers, are very expensive (US\$977, \$1,683, and \$1,300 in 1988 for the three journals just mentioned), and voluminous (24, 16, 30 issues per year). Circulation figures for these journals, and others like them, are confidential. Estimates of total circulation we obtained from a "knowledgeable source" were only 850 copies for *Aquaculture* and about 300 copies for *Environmental Biology of Fishes*. In contrast, *Science* has about 130,000 individual and 20,000 institutional subscribers. Specialty journals of societies, laboratories, and governments (at least in our survey) ranged from a high of 6,500 individual subscribers for *American Zoologist* to a low of under 50 for the *Canadian Journal of Zoology*. Most mature journals can assume an institutional circulation of 750 to 2,000 copies. Our journal, *Fishery Bulletin*, falls at the lower end; about 2,200 copies go to individuals and institutions combined.

We expected that scientists would want the maximum exposure possible for their articles and, therefore, would direct most of their manuscripts to journals with large circulations. However, for the journals in our survey (the ones for which we have information on submission and circulation), the number of annual submissions did not correlate with total circulation (Figure 1). Save for *Science*, with its large circulation and 4,000 unsolicited submissions each year, a large circulation does not seem to attract a large number of contributed papers. Seemingly, few scientists are concerned with circulation.

In contrast, rejection rate seems to be positively correlated with the number of annual submissions (Figure 2; $N = 20$, $P < 0.001$, $r^2 = 0.453$; Zar 1984). Again, *Science* provides an extreme value; of the 4,000 manuscripts received, editors can

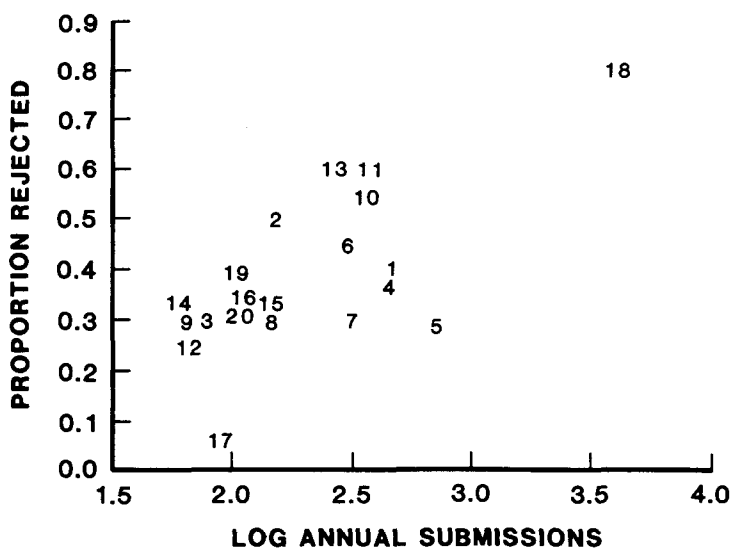


FIGURE 2.—Log₁₀ annual submissions (number of manuscripts) to 20 scientific journals correlated with proportion of manuscripts rejected ($N = 20$, $P < 0.001$, $r^2 = 0.453$; Zar 1984). (1) *Aquaculture*, (2) *Biological Bulletin*, (3) *California Fish and Game*, (4) *Canadian Journal of Fisheries and Aquatic Sciences*, (5) *Canadian Journal of Zoology*, (6) *Copeia*, (7) *Environmental Biology of Fishes*, (8) *Fishery Bulletin*, (9) *Journal of Crustacean Biology*, (10) *Journal of Fish Biology*, (11) *Journal of Mammalogy*, (12) *Journal of Shellfish Research*, (13) *Limnology and Oceanography*, (14) *Marine Mammal Science*, (15) *North American Journal of Fisheries Management*, (16) *Physiological Zoology*, (17) *Progressive Fish-Culturist*, (18) *Science*, (19) *Systematic Zoology*, (20) *Transactions of the American Fisheries Society*.

reject 3,200 and still fill 52 issues per year. At the other extreme is *Progressive Fish-Culturist*, which rejects about 6 of its annual submissions of about 90 manuscripts. The *Canadian Journal of Zoology* deviates from the pattern somewhat in that it has 705 submissions per year and rejects only 29%.

Rejection rates for the sample of journals we used clustered around 30% (Figure 3). We do not know why. Perhaps scientists are capable of producing only two good manuscripts out of three, or, alternatively, every third scientist is incompetent. For *Fishery Bulletin*, we have no targets or guides on how many manuscripts we should reject, nor do we track or try to achieve any given figure. Nevertheless, we rejected 24% over the last 2 years, either immediately because they were inappropriate for the journal or after review. This percentage does not include "open" manuscripts, which require such extensive revision that they may never be resubmitted, or manuscripts that we requested be reduced to notes.

The influence of a journal can be estimated by various measures of the rate at which articles in that journal are cited. These analyses are provided by the *Journal Citation Reports*. One such measure is the "impact factor," a ratio of citations to citable items. It is the average frequency with which an article is cited during a particular year in other articles, both in the measured journal and in others. The measure for journal X for a given year, say 1984, is the number of 1984 citations

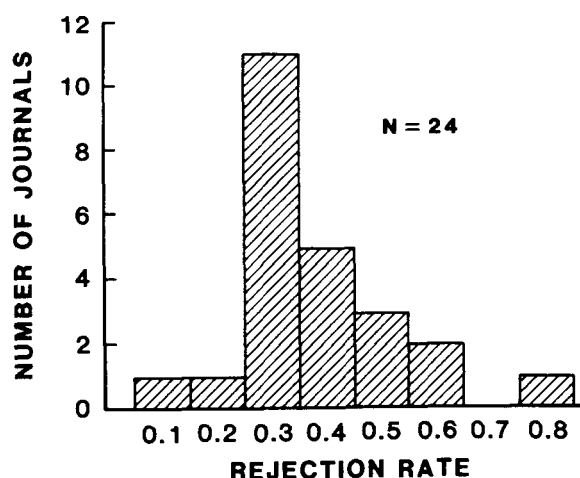


FIGURE 3.—Distribution of the proportion of manuscripts rejected by 24 of the 25 journals listed in Table 1.

everywhere to articles that had been published in journal *X* during the previous 2 years, 1983 and 1982, divided by the total number of citable articles published in journal *X* during those 2 years (Garfield 1972). The measure is biased by the size of the citing corpus and the choice of the 2-year window; this bias limits its utility for making comparisons between journals.

We examined the relation of impact factor to submission rate and, curiously, found that the two did not seem correlated (Figure 4). Once again *Science* is the exception, but journals such as *Limnology and Oceanography* and *Systematic Zoology*, whose subjectively perceived excellence is supported by high impact factors, are not distinguished by particularly high submission rates. Perhaps most scientists are unconcerned about the impact of their papers in terms of citability or, more likely, judge their contributions perceptively and avoid journals that would probably reject them.

Meeting Basic Standards

It is folly to increase the probability of a rejection by failing to meet the basic standards required of any scientific manuscript. By basic standards, we are not referring to scientific quality—that determination is somewhat more subjective. These are the standards, for the most part easily met, that dictate that a manuscript approximate the journal style, have easily readable text and prose, have legible and comprehensible figures and tables, and lack typographical errors. Nothing annoys a journal editor more than receiving a manuscript from an author who has obviously assumed that these details are unimportant.

The following admonitions may be reiterated by other authors in the present volume, but repetition will emphasize the point. Submitted manuscripts that meet the following criteria keep the scientific editor and the editorial staff reasonably happy and usually fare better than average in the reviewing process.

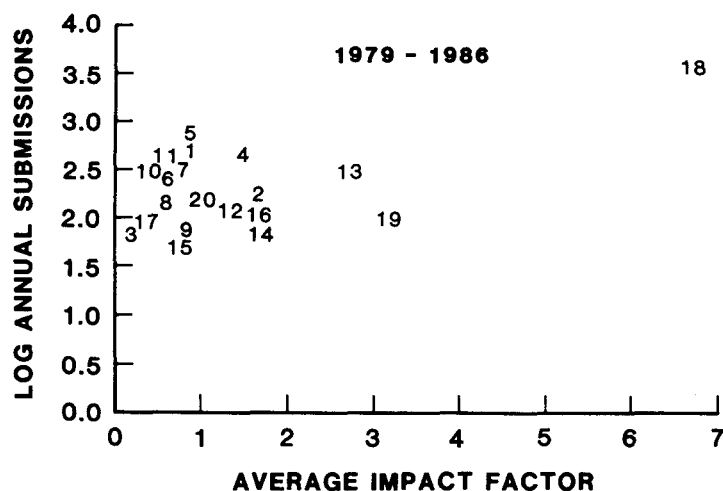


FIGURE 4.—Log₁₀ annual submissions to 20 scientific journals versus average impact factor (number of citations per number of citable articles, from *Journal Citation Reports* 1979–1986). The following legend differs from that for Figure 2. (1) *Aquaculture*, (2) *Biological Bulletin*, (3) *California Fish and Game*, (4) *Canadian Journal of Fisheries and Aquatic Sciences*, (5) *Canadian Journal of Zoology*, (6) *Copeia*, (7) *Environmental Biology of Fishes*, (8) *Fishery Bulletin*, (9) *Journal of Crustacean Biology*, (10) *Journal of Mammalogy*, (11) *Journal of Wildlife Management*, (12) *Journal of Experimental Marine Biology and Ecology*, (13) *Limnology and Oceanography*, (14) *Marine Biology*, (15) *Marine Mammal Science*, (16) *Physiological Zoology*, (17) *Progressive Fish-Culturist*, (18) *Science*, (19) *Systematic Zoology*, (20) *Transactions of the American Fisheries Society*.

(1) The manuscript copy should approximate the style of the journal. It shows consideration for the copy editors and gives the scientific editor the impression that the manuscript was intended for his or her journal and was not rejected by some other journal. Approximating the specific style means that the copy editor will make fewer corrections on the copy. The more heavily a manuscript is marked, the more likely that errors will creep in during the typesetting process.

(2) The typography of the manuscript must be dark and legible and easily copied. Most manuscripts today are prepared on word processors; these should be output via a daisy wheel or laser printer. Do not submit a manuscript printed by a dot matrix printer; if you have no choice, use the emphasized or near-letter-quality mode with a new ribbon. Double-space all text, including the abstract, references, footnotes, and legends; they are edited too. Do not right-justify (i.e., do not create an even right margin); this adds extraneous spaces and makes the text harder to read. Do not hyphenate a word at the end of a line of typescript; ambiguous situations may occur. Indent each paragraph; if a new paragraph comes at a page break, it will be missed. Number each page; the frequency with which we get manuscripts without page numbers is surprising. Follow the guidelines of the American Mathematical Society for putting mathematics into print (Swanson 1979) and the CBE Style Manual (5th edition, 1983) for guidance.

(3) The manuscript must have readable prose (see Eschmeyer 1990 and Sinderman 1990, this volume). No more need be said.

(4) The manuscript must not contain unnecessary tables and figures (see Kennedy and Kennedy 1990, this volume). Ensure that the ones you include are comprehensible and well-designed. With the advent of inexpensive and easy-to-use computer graphics programs, more manuscripts include computer-generated figures and, perhaps as a result of the ease and low cost, include too many. Good biologists are not necessarily good graphic artists, and we believe that the quality of figures accompanying manuscripts has suffered as increasing numbers of biologists generate their own graphics with computers. Too many authors lose sight of the original goal of communicating information and get carried away with decorative graphical flourishes (fancy fonts, drop shadows, elaborate fill and grid patterns, shadow effects, exploding pie-wedges, etc.). Biologists producing their own figures should read "The Visual Display of Quantitative Information" by Tufte (1983), a remarkably readable and entertaining treatise on the historical evolution and proper design of statistical graphics.

(5) The manuscript must be proofread prior to submission. Take time with the preparation of the manuscript copy. The submission must be free of typographical errors and the style must be consistent throughout. Each manuscript copy must include all its tables and figures; although we at the *Fishery Bulletin* try to check each manuscript, incomplete copies occasionally are sent out to reviewers. We find it curious that a sizable minority of authors seems to feel that proofing copy is something that will be done by the journal editors, or that they will get to it after the review. They hope that reviewers will ignore these "trivial" matters and concentrate on the science. But sloppy manuscript preparation annoys the editors because it increases their work. It is also a red flag to reviewers; if the author is negligent with these details, reviewers often assume (and often correctly) that the carelessness carries over to the science. Reviewers are remarkably (and justifiably) harsh on authors of slipshod manuscripts.

In summary, the time spent carefully polishing a manuscript is trivial compared to the time spent collecting the data, analyzing them, and writing and editing the drafts. We think that a final polishing pays large dividends when a paper is reviewed and when the editorial decision about its publication is made.

Dealing with Reviewers' Comments

We assume that all scientists want the results of their research published, but we are not so naive as to think that their only motivation is a desire to communicate knowledge. Due to a variety of pressures, the act of publishing is itself a goal. We believe that it is important to recognize this as a modern reality; however, this need sometimes threatens the good judgment of authors about what constitutes merit in a contribution and makes them reluctant to accept negative criticism. ("I don't care if it's bad, I *have* to publish it.")

Ideally, authors should be as critical of their own manuscripts as anonymous reviewers are; however, this degree of self-criticism is unlikely. This unlikelihood and the pressures to publish makes an expert review system necessary. Thus, even if you are ill-served by a review, you still should recognize that the system is important, and treat the process with some degree of respect. It is not perfect, but better alternatives have not emerged.

Because most journals are multidisciplinary, their scientific editors depend heavily on the reviewers' recommendations. For the *Fishery Bulletin*, we attempt

to get reviews from workers who are currently active in the subject field and who (we hope) are vitally interested in the subject matter. We trust that the solicited reviews are conscientious, informed, and thorough, because the verdict of the reviewers usually determines the final disposition of the manuscript. By and large, the system works. Our experience has been that most reviews are competent, and most authors find value in the comments of the reviewers.

Still, it is rarely pleasant to receive criticism, and criticism is sometimes applied with a heavy hand. From our observations, reviewers seem to develop a certain degree of hostility or righteous indignation toward manuscripts. This is understandable because reviewing manuscripts is an imposition with little reward. Most reviewers do not take on the persona of the wise teacher dispensing only constructive criticism. The perfectly normal, hostile emotions that the reviewer experiences fuel the search for error. The effectiveness of this hostility is borne out by the difference in quality between the reviews you the author solicit from your friends and colleagues (reviews that are often worthless or, if of value, too easy to ignore) and the ones supplied by the shadowy figures hiding behind the scientific editor. It is the anonymous reviews that reveal the weakness of the approach or the error in the methodology.

The fiendish joy that the reviewer experiences in finding flaws sometimes is apparent in the written comments that the author sees. The editor has considerable responsibility to maintain civility during the proceedings, but he or she is not always successful at winnowing out all potentially insulting comments. Some authors are insulted by the tone and hyperbole of such comments. This is somewhat puzzling; most authors have been reviewers, and many, if not all, have skewered an author or two themselves. In all situations, we suggest that the content of reviews, rather than the tone, be considered. Understanding what motivates the reviewer helps you ignore the hyperbole.

Besides resorting to snide hyperbole, reviewers sometimes are wrong and suggest poor revisions, and scientific editors sometimes pass these bad suggestions back to you. This gives you ample opportunity, in your resubmission covering letter, to indignantly pay back a career's worth of slights by all of the anonymous reviewers who have flayed your previous papers. Don't do it. Sometimes the scientific editor passes your sarcastic comments back to the reviewer—to whom you are not anonymous.

Handle the situation like this. Carefully evaluate all of comments of the reviewers and scientific editor. Handle those with merit, and look again at those without. In some instances, even wrong assertions or suggestions by the reviewers or scientific editor reveal a weakness in your argument or analysis. Reviewers are proxies for future readers. When they are confused, it is usually because of the author's bad writing. If, in a final dispassionate analysis, you conclude that the reviewer and scientific editor are simply wrong, be diplomatic even though this courtesy may seem one-sided. (After all, although the reviewer gets no real credit for a difficult job, you may end up with a published paper.) With your revised manuscript, you should write an accompanying letter indicating that you have carefully considered the reviewer's concerns and briefly noting how you handled each. For things that you are not willing to change (the objection is wrong, inappropriate, or stems from legitimate scientific differences), state why but keep the dialogue brief. We eventually published a manuscript dealing with fishery

economics by an author whose rebuttal to a reviewer's comments was three times as long as the manuscript itself.

The scientific editor is occasionally caught in the middle of an apparently irreconcilable conflict between an author and an anonymous reviewer. In that situation, new reviewers are in order—some of whom might be suggested by you, the author. Additional reviews usually resolve the conflict; however, they can lead to contradictory advice, especially if the manuscript has gone through several review cycles. We have sometimes been embarrassed when the advice of new reviewers contradicts the advice that we have been dispensing on the basis of the original reviewers' concerns.

Sometimes the process goes totally awry. Our last warning to you is to avoid berating the scientific editor or journal about how poorly you were served by the process. In 2 years, we have had two irate authors who let us know exactly how they felt. Both swore they would never publish in the *Fishery Bulletin* again. One was mad because we rejected his manuscript. The other was mad because, although we accepted the manuscript, our reviewers were too slow at their jobs (actually, the delays were largely on the author's end). Revenge is sweet, but short-lived. Getting published is too important and too difficult for you to jeopardize future chances by eliminating outlets and alienating colleagues.

As we said in the beginning of this section, the peer-review process is not a perfect system—just a necessary one.

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