Engage with scientific reviewing: understanding and contributing to the peer-review process

Richard S. McBride, Ph.D.
Richard.McBride@noaa.gov

Northeast Fisheries Science Center,
Woods Hole Laboratory
Learning objectives

Define your role as a reviewer

Apply different types of review

- Science
- Line or copy edit
- Proofread

Decide how to respond to reviews
You’ve got mail

Invitation to peer-review

- Colleague (draft)
- Boss (policy paper)
- Journal editor (manuscript)
- Student (thesis)
- Grant agency (proposal)

What do you do?
1. Have enough time?
2. Within expertise?
3. Conflict of interest?
Clarify your role
- Full review
- Spot review
- Copy edit
- Proofread

Clarify the document’s:
- Purpose
- Audience
- Format
- Politics

Should you accept?
- yes
- no

Recommend alternative
Differing review scenarios

- Editor in Chief
  - Managing Editor
    - Copy Editor
    - Printer
  - Editorial Board
  - Handling Editor
  - Reviewer

- Formal
- Informal

At the Captain Kidd, Woods Hole
A full science review

Read critically

• Form, style, content

Prioritize your criticism

• You need not fix everything

Communicate your criticism

• Summary, major, and minor comments
Read critically

Format

Style

Content

Punctuation, grammar

How it is delivered

Science, policy

Alley (2000)
Categorize your science criticism...

- Originality
- Framework
- Scope
- Presentation
- Study design
- Methodology
- Analysis
- Interpretation

... to diagnose problems and frame your response.

Schramm and Miranda (2012)
Prioritize your criticism (minor, major)

**Format**
- Split infinitives versus constant misspellings

**Style**
- A few awkward sentences vs. a series of poor topic sentences

**Contents**
- Sample size doesn’t add up vs. not reproducible

**Ethics**
- Missing a key historic reference vs. plagiarism
Beware of common biases

Reject a paper that defies established dogma

Less scrutiny to a senior or established author(s)

Negative results need not be published

The paper needs more attention to your specialty

Jude (2012)
Ennui (noun)
a feeling of utter weariness and discontent resulting from satiety or lack of interest

Vague title
• “Two Fish in a Pond”

Listless abstract
• “The results will be discussed.”

Weak thesis
• Lacks discovery or criteria to accept/reject
You may not be able to ‘fix’ it
Communicate your criticism to the authors

General summaries

• The paper’s main point
• Your main impression, put the paper in some context
• A (or a few) key strength(s) & weakness(es)

2-4 major points of concern

• Identifying remedies, too.

Minor

• Line-by-line editorial comments

Date it. Sign it?
Communicate your criticism to the editor

Be more candid
- But don’t disagree with your comments to authors

Clarify your expertise, if appropriate
- If your could not evaluate the math, for example, say so

Recommend whether to publish or not
- Add a comment about your certainty in this recommendation
Respond with tact

Balance your negatives with some positives

Focus on the manuscript and not the authors

Avoid hard value judgments (e.g., NEVER do this)
  - Some journals may do that!

Be impartial
  - But show some emotion or engagement
More tips on delivery

Control tone with reason
• I recommend this, because…

Perhaps a question is best
• What are the error bars in Figures 2-5?

Give the choice back to the authors
• Figure 7 and Table 9 present the same information, so why have both?

Give yourself time to reflect and revise your review
• If only an hour, or preferably, a day or more later
More than just accept or reject

<table>
<thead>
<tr>
<th>Option</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Accept</td>
<td></td>
</tr>
<tr>
<td>Accept with minor revisions</td>
<td></td>
</tr>
<tr>
<td>Accept with major revisions</td>
<td>• May require re-review</td>
</tr>
<tr>
<td>Resubmit a revised manuscript</td>
<td>• Likely requires re-review</td>
</tr>
<tr>
<td>Reject</td>
<td></td>
</tr>
</tbody>
</table>
To fund or not?

- Relevance to the program (25%)
- Technical or scientific merit (30%)
- Applicant qualifications (15%)
- Project costs (10%)
- Outreach, education, or application (20%)
What’s in it for you?

You review within your expertise
• Now you read a paper \textit{before} it is published

Spend time researching responses
• You might learn something new

Sharpen your critical thinking skills
• Making you a better writer and scientist

It will improve tact and social skills
• A good review will expand your network
Beyond the science: line or copy edits

- delete
  - Delete extra letters or unnecessary words.

- para
  - Adds a new paragraph.

- stet
  - Let it stand. (Indicates that a correction or alteration should be ignored.)

- transpose
  - Transpose a letter or a word that's misplaced been.

- space
  - Add a space.

- delete and close up
  - This is used so the typesetter knows he should delete and close up the space.

- close up
  - A way to remove pesky extra spaces.

- spell out
  - A circled 1 or 2 or an abbreviation means the word should be spelled out.

- period
  - Dr. Author omitted something small but significant Circling is also used to
Proofreading tips

Focus on title, abstract, and illustrations

Not all words deserve equal attention

Put it down and come back later

• Or take it to a different setting

Read backward or out loud
**Yours**
Conflicts of Interest
Confidentiality
Contact with authors

**Theirs**
Authorship
Conflicts of interest
Dual Publication
Salami science
Plagiarism
Data falsification
Image manipulation
Image beautification
Responding to reviews
3 golden rules

Answer completely
• Point by point

Answer politely
• Remember they’re volunteers

Answer with evidence
• Especially when you disagree
Rejection

Put some distance on this

- You should respond or revise with a cool head

Identify the main reason

- Discern if this is fatal or not

If not flawed, revise

- Probably selecting a new journal
Use your software tools completely

- Spell check, search and replace for consistency.

Re-read your revised ms. later

- Focus on title, abstract, legends, etc.
- Look for new issues resulting from revision

Proofread the printer’s proofs

- New mistakes can appear at this stage
More resources
On the internet, too.

How to review a paper

By Elisabeth Pain | Sep. 22, 2016, 5:00 PM

As junior scientists develop their expertise and make names for themselves, they are increasingly likely to receive invitations to review research manuscripts. It’s an important skill and service to the scientific community, but the learning curve can be particularly steep. Writing a good review requires expertise in the field, an intimate knowledge of research methods, a critical mind, the ability to give fair and constructive feedback, and sensitivity to the feelings of authors on the receiving
Learning objectives

Define your role as a reviewer

Apply different types of review
- Science
- Line or copy edit
- Proofread

Decide how to respond to reviews

http://www.nefsc.noaa.gov/nefsc/woodshole/seminar-public.html
Peer-review is the big show

True or false?
- Determines whether to fund or publish
- Improves the quality of the final product
- Detects plagiarism and fraud
- Pays big bucks
- Is not for students
- A perfect system
Chaos reigns

- Title
  - Misrepresents the paper

- Poor topic sentences
  - Rambling paragraphs or an entire section

- Unnecessary or redundant tables/figures
  - Editors view these as costly

- Nobody acknowledged for a friendly review