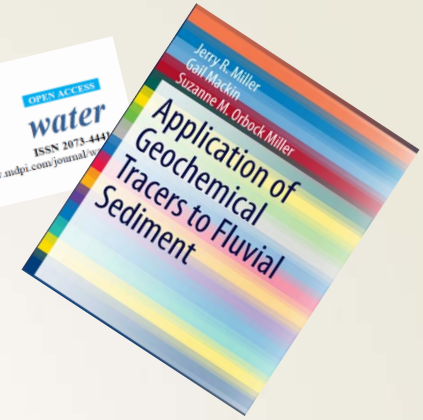




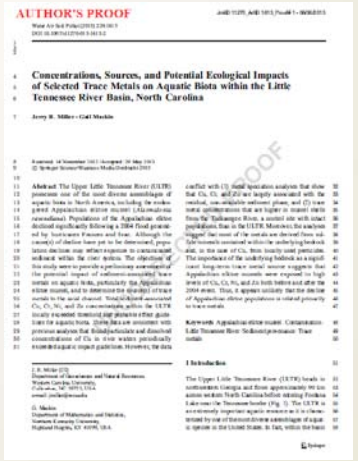





# The Publication of Scientific Research in the 21st Century

Jerry R. Miller

ACCDON, LLC


AUTHOR'S PROOF

Concentrations, Sources, and Potential Ecological Impacts of Selected Trace Metals on Aquatic Biota within the Little Tennessee River Basin, North Carolina

Jerry R. Miller · Gail Mackin

LetPub
Your Manuscript Editor

# Scope of the Presentation

Overview of the Past, Current, and Future State of English Journal Publishing

Examination of the Review Process from The Scientists Editor's and Reviewer's Perspective

Frequent Organizational and Writing Errors

Tips for Successful Writing in the 21st Century

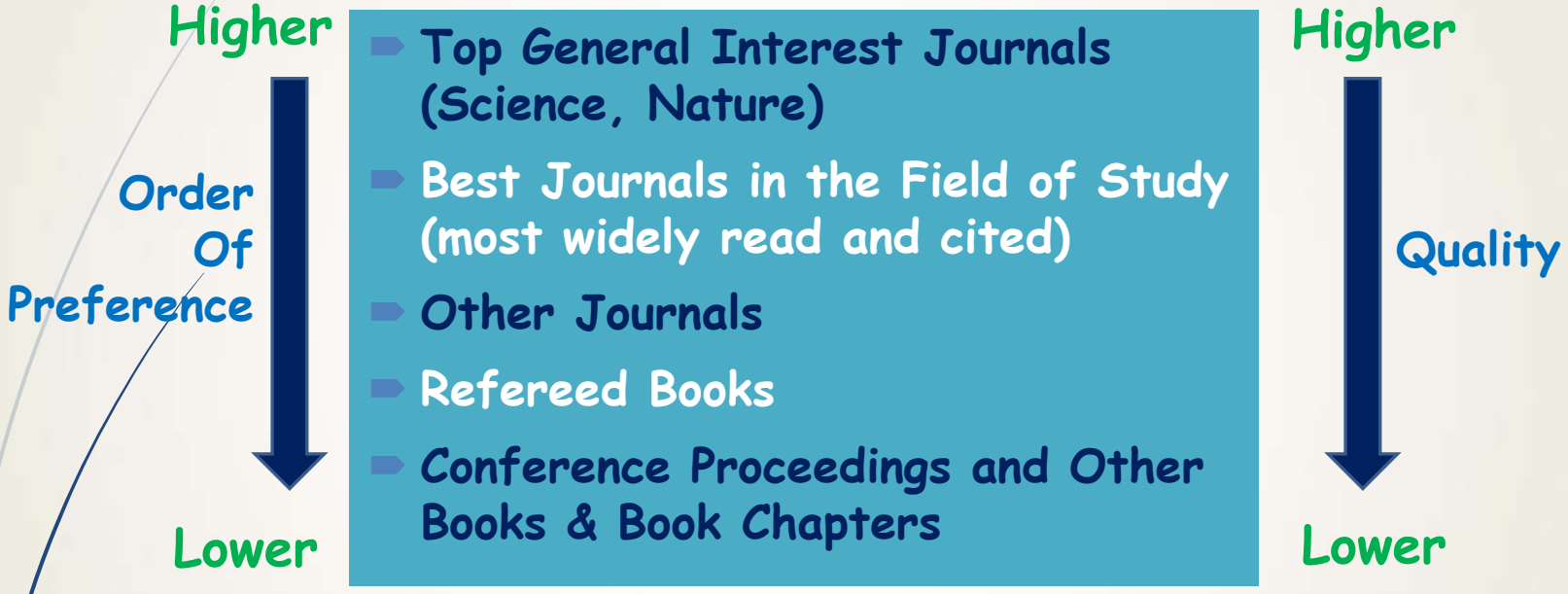
# Science

**Definition (Oxford Dictionary):** The intellectual and practical activity encompassing the systematic study of the structure and behavior of the physical and natural world through observation and experiment

Synonym: Body of knowledge/information

(Published Works)

# Hierarchy in the Distribution of Scientific Results




Modified From Randal Filer, Iset Policy Institute

# Journals versus Book Chapters

## Journals

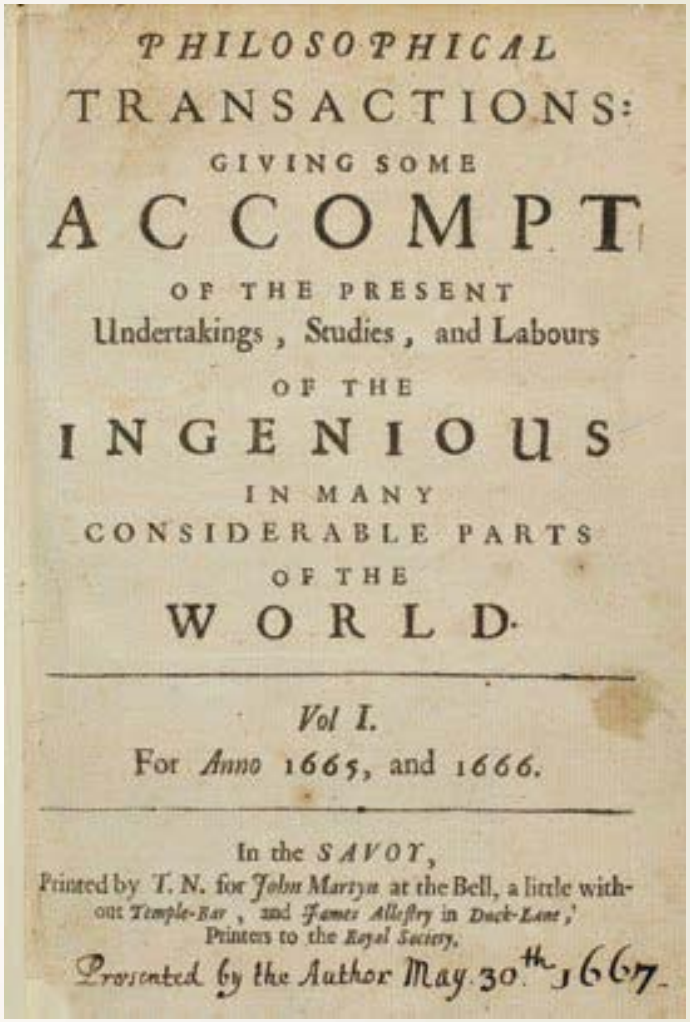
- Editorial Goals: Journal editors are looking for something new and original that will receive considerable interest and citations (drives impact factors)
- Advantages
  - Peer review typically significant
  - More widely distributed
  - Cited and read more frequently
  - More available online
- Disadvantages
  - Page and figure limitations

## Book Chapters

- Editorial Goals: Book editors are looking for materials that sells to as large of audience as possible
- Advantages
  - Typical less restrictive on length and figures
  - Author association with topic
- Disadvantages
  - Lower quality reviews
  - Less reputable
  - Less well distributed
  - Often require longer publication times
  - Less availability online

# First Scientific Writings

- First paper was published on 6 March 1665 in the Philosophical Transactions of the Royal Society
  - Published by the "Royal Society of London for Improving Natural Knowledge"
  - Granted charter to publish by King Charles II
  - Intent was to inform "the Fellows of the Society and other interested readers of the latest scientific discoveries"



PHILOSOPHICAL
TRANSACTIONS:
GIVING SOME
ACCOMPT
OF THE PRESENT
Undertakings, Studies, and Labours
OF THE
INGENIOUS
IN MANY
CONSIDERABLE PARTS
OF THE
WORLD.

Vol I.
For Anno 1665, and 1666.

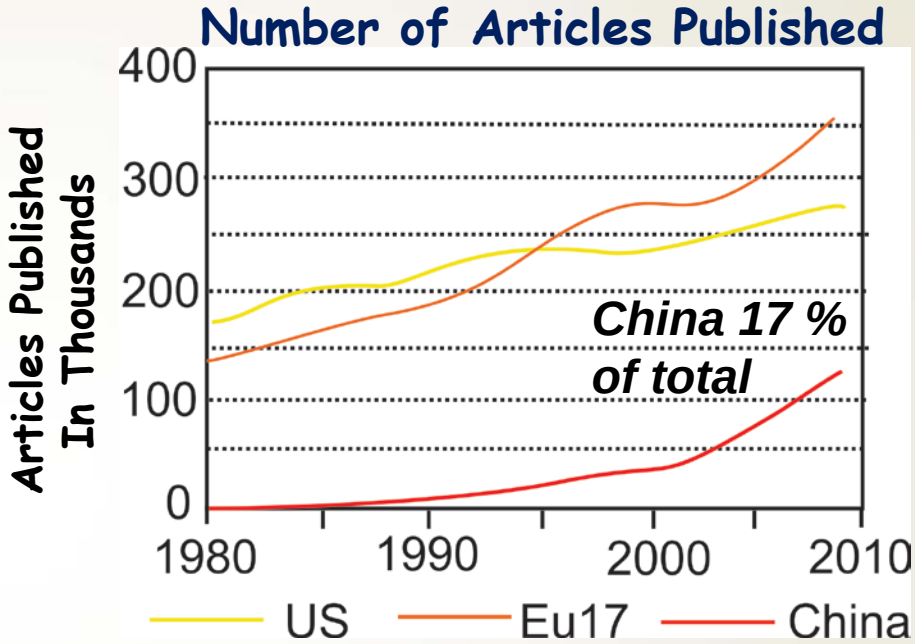
In the SAVOY,
Printed by T. N. for John Martyn at the Bell, a little without Temple-Bar, and James Allestry in Duck-Lane,
Printers to the Royal Society.
Presented by the Author May 30th 1667.

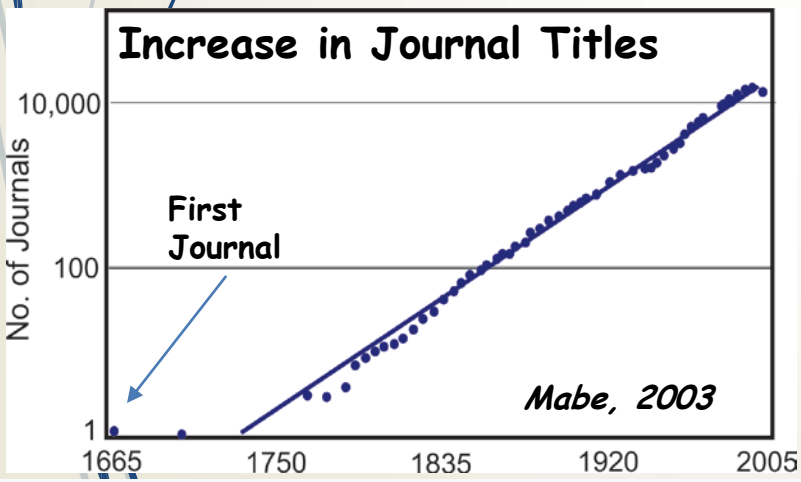
From:
http://rstl.royalsocietypublishing.org/

# Peer-Reviewed Journals

## English Language Journals

- ~28,100 peer-reviewed journals (all fields) (Plume & Van Weijen, 2014)
- Publish ~2.5 million articles per year
- ~3.5-4.5 % increase in published articles
- CrossRef database includes ~55 million journal articles




## Thomson Reuter's Journal Citation Reports (most cited journals)

- 10,900 journals
- 2,550 publishers
- 8,700 are science related
- 3,200 are social science related
- 1.5 million articles published per year collectively

# Peer-Reviewed Journals

- Method of sharing data and discoveries
- Maintain quality of science – allow only sound research to be disseminated
- Serve as an archive for scientific data and discovery
- Provide author services
  - Register author's findings/discoveries (precedence)
  - Serves as a indicator of researcher's impacts on field
    - STM stated that the primary reasons for publishing was to obtain funding and furthering author's career.

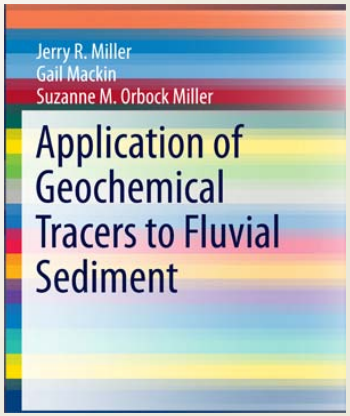
# Publishers


- Wide range of publishers
  - Globally, 5000-10000 journal publishers
  - ~650 main English-language publishers
    - 73 % are not-for-profit
      - Only Publish 20 % of journals
      - 80 % of journals published by for-profit publishers
        - 9,240 journal of total 11,550 (English)
        - Elsevier - ~25 % of total science titles
- Revenues are often high – US $25.2 Billion
  - US $10 Billion for journals
  - US $5 Billion in books

Data from STM, 2015

# Publishers

- Expenses are relatively low
  - Submitted manuscripts are free
  - Publishers rely heavily on free labor provided by associate editors, editorial boards, and reviewers
- Profit margins varies significantly (can be 30 – 40%)
- Different Business Models Exist
  - Traditional (copyright/subscription) based model
  - Open Access
  - ebooks/chapter approaches



# Publishers MUST Receive Papers They Can Accept to Remain in Business

Citations Serve as Currency
(Impact Factors)

Submissions
Based on Reputation,
Readership, and Quality

Scientists want
to be recognized

Scientists Strive for
Readership and Citations

# Impact Factor

- Formulated by Eugene Garfield, founder of the Institute of Scientific Information (ISI)
- Produced by Thomson Reuters and Published Annually in the ISI Citations Reports (starting in 1975), for journals indexed in ISI databases (Web of Science/Knowledge)
- It is the average number of times each paper published in that journal is cited during the preceding two years by other indexed journals

Example:

$$\text{Impact Factor 2014} = \frac{\text{\# of times that all papers published in journal in 2012 \& 2013 were cited in indexed journals 2014}}{\text{\# of articles published in that journal in 2012 \& 2013}}$$

# Impact of Increased Publication Volume on Scientists


## Fallout of digital publishing and distribution

- Access to papers has, in general, increased and is dominated by online sources
- A larger number of journals combined with a larger volume of published articles has made it more of a challenge for our papers to get noticed

**Not only do we need to get published, but we need to do it in such a way that the papers we publish will get read.**

# Balancing Quality, Quantity, and Professional Success

## Quantity versus Quality


**International Standard: To Maximize Quality**

**Academic/Institutional Demands Quantity**

# Always Strive to Maximize Quality

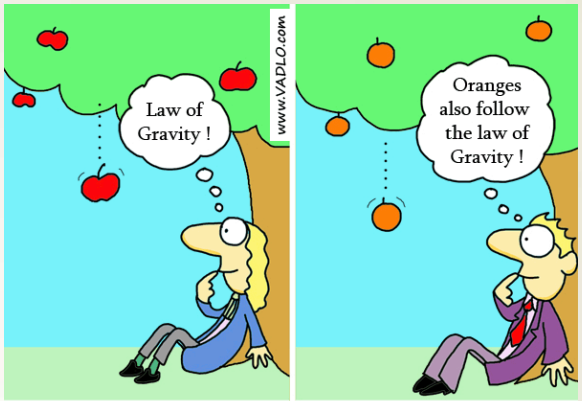
**Research I Universities in the US require about 2 papers per year in refereed journals for Promotion & Tenure**


Dreamtime.com

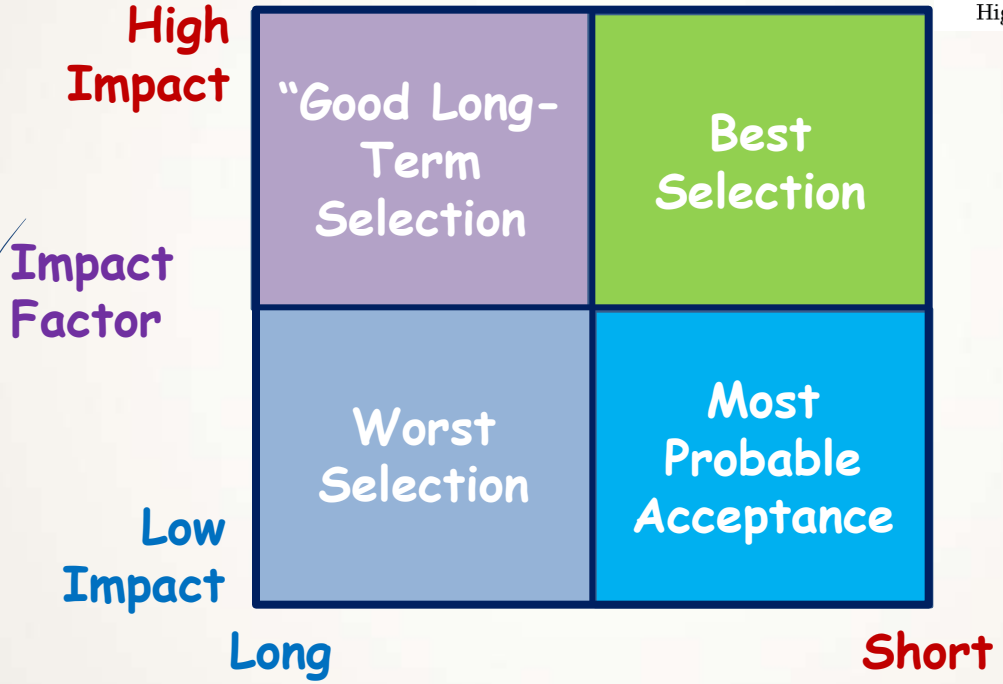
## Reasons to Maximize Quality over Quantity

- You can publish a million papers, but if the papers are not of high quality, few other scientists will follow your works
- **Good works get lost in the mix of lower quality articles**
- First impressions count – especially important for early career scientists

# Journal Selection Model

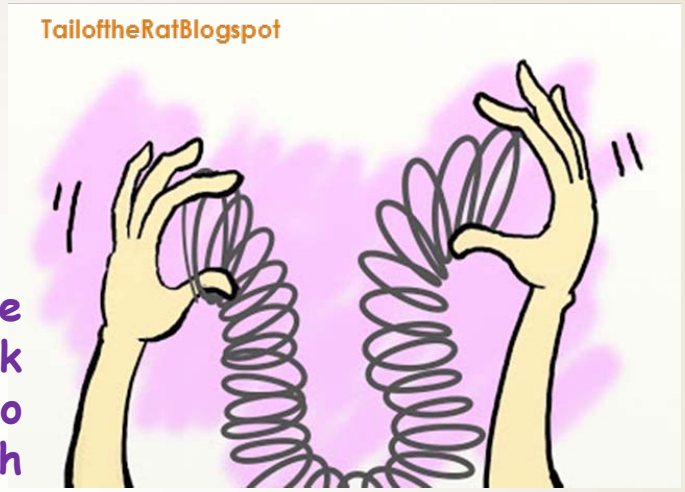



High Impact Paper | Low Impact Paper

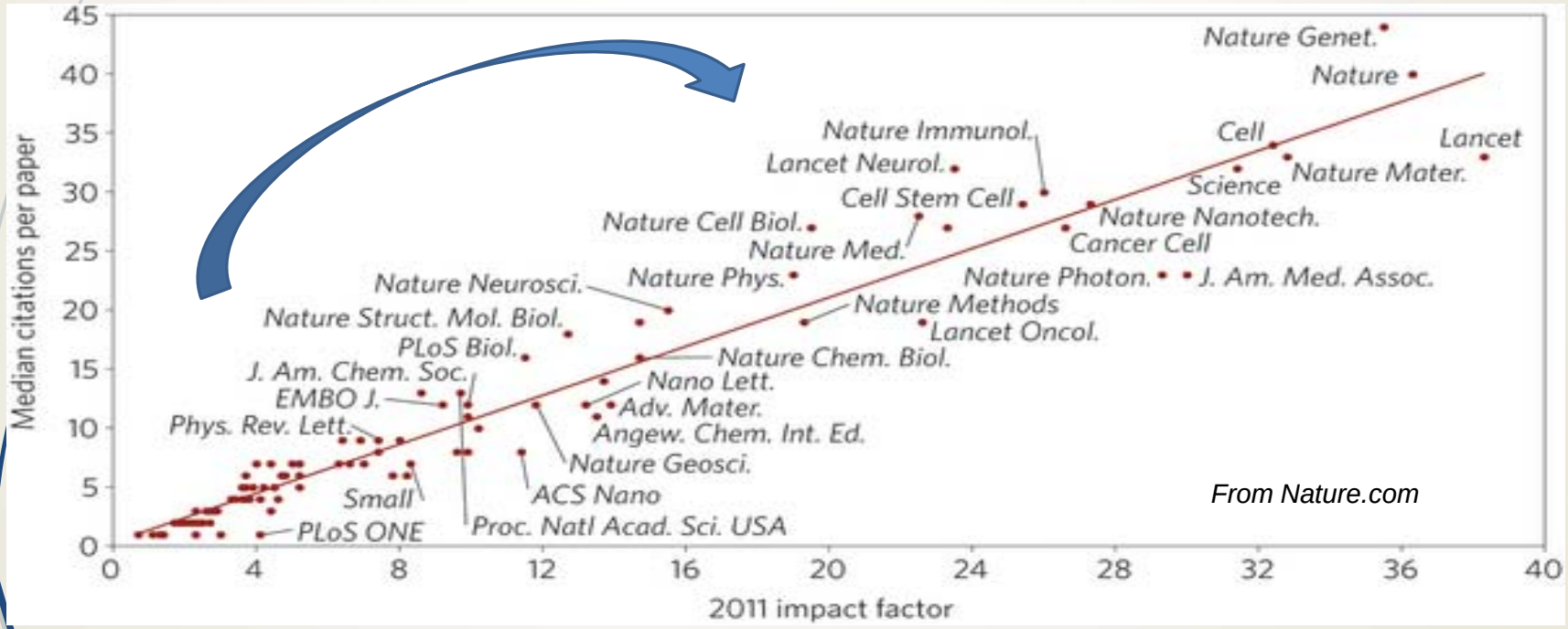



*After Linda V. Knight and Theresa A. Steinbach, 2008*

# Journal Impact Factors

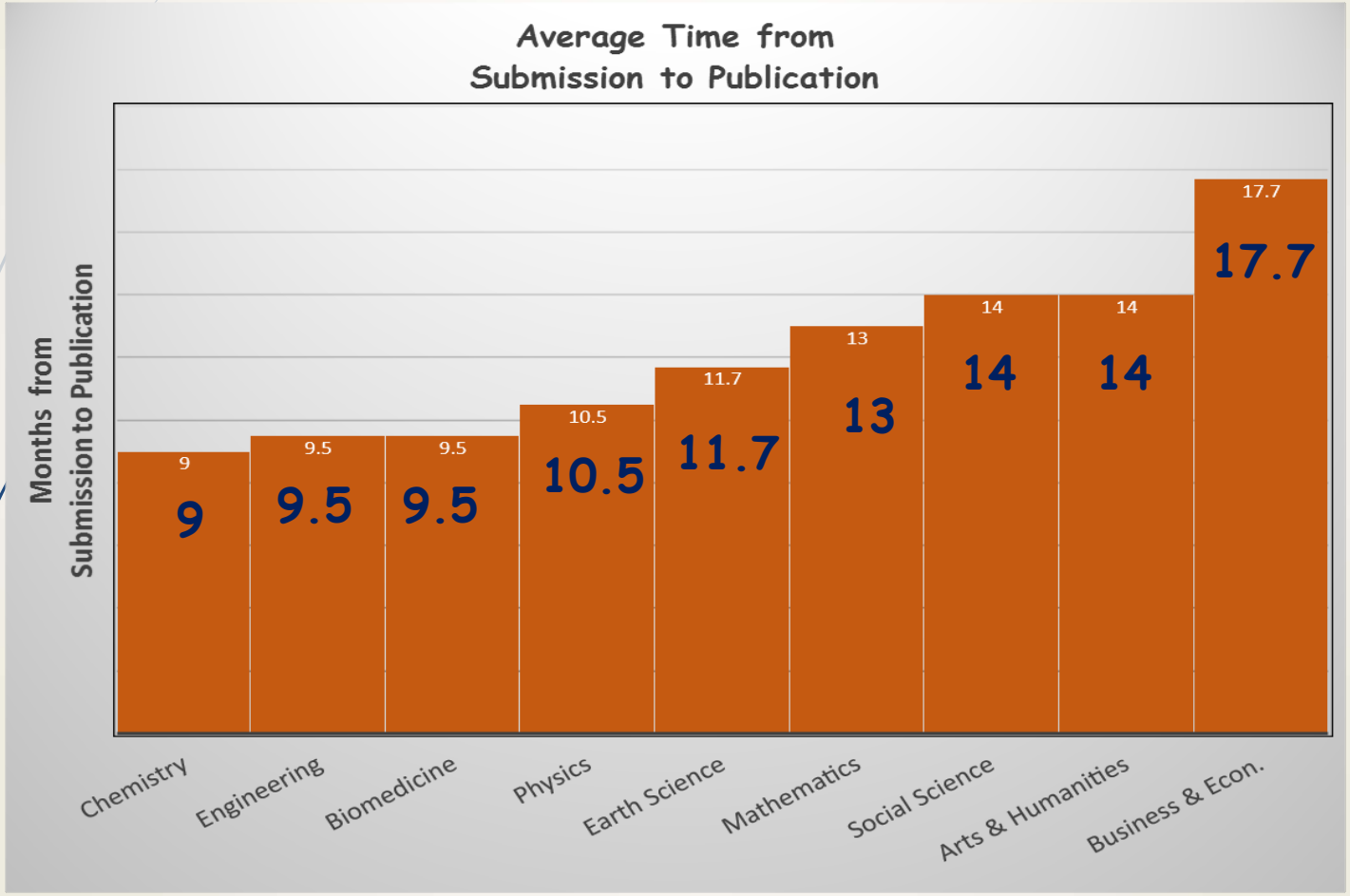



Stretch – upper end of the quality range for the work you are attempting to publish



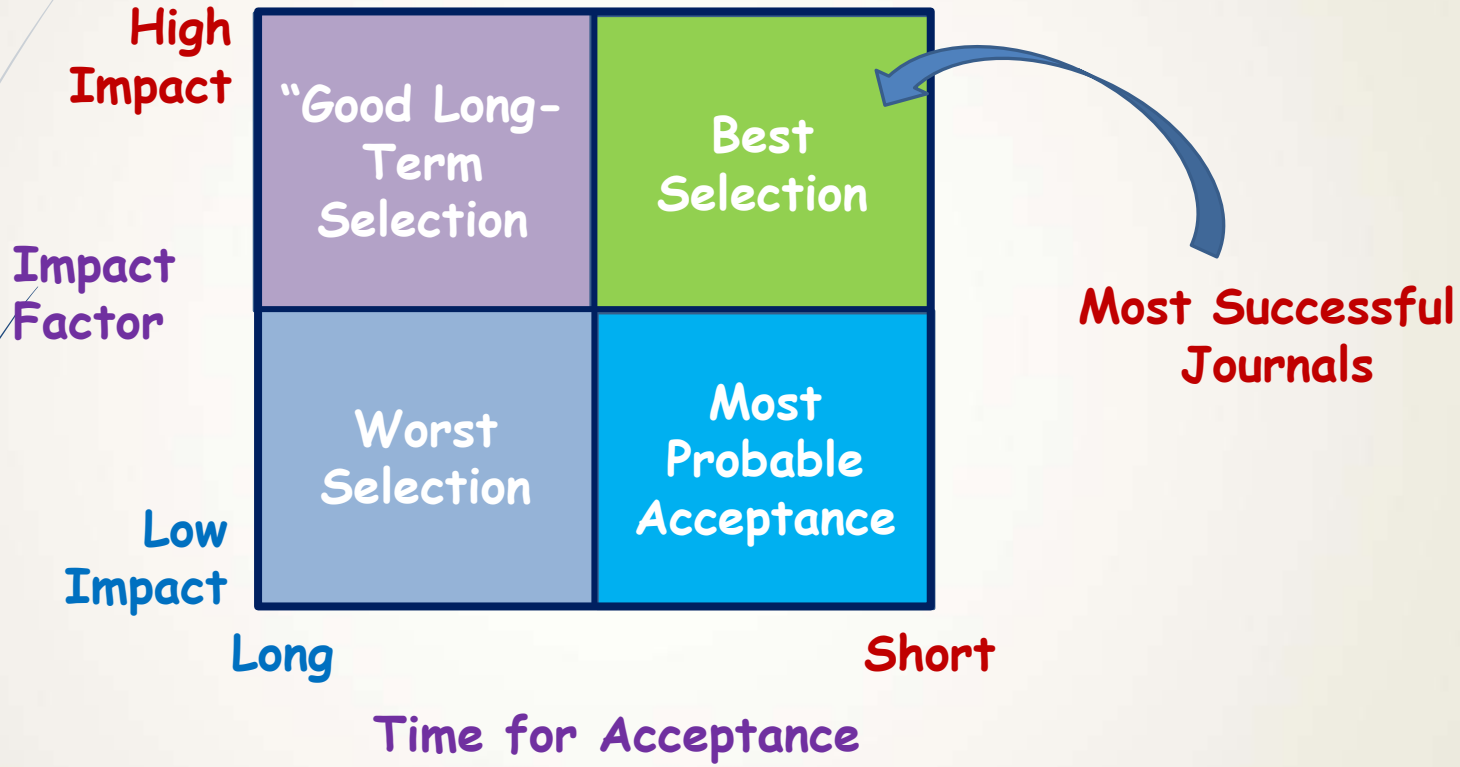

- Impact Factors Vary Significantly between Disciplines

# Frustration with the Time Required for Publication




Acceptance times varies by discipline

# Journal Selection Model




*After Linda V. Knight and Theresa A. Steinbach, 2008*

# Onset of Digital Scientific Publishing

## Historically (before ~1997)

- Papers were available almost exclusively in paper form
  - Books and papers were primary contained within institutional libraries
- Hardcopies submitted by mail, along with hand drafted figures
-

## Computer 'Age' (after ~1997)

- 2009
  - 55 % - electronic only
  - 25 % - print only
  - 20 % - print & electronic
- 2012
  - 95 % electronic only
- Predominant distribution
  - pdf file
  - html
- Electronic Submission

Data from Anthony Newman

➢Peer-Review remains a key element, but some experimentation with other review models

➢"Soundness Not significance" (PLOS ONE megajournal)

# Primary Publisher Business Models

## Copyright (traditional)

- Publisher owns copyrights
  - More difficult to use own materials in later papers
  - More difficult to distribute via online networking
- Costs paid for by institutional subscriptions
  - Some page charges may apply
  - Lower upfront author costs
- Access more restricted
  - Journal costs are now very high and increasing
- Many of these journals have been around longer, are better known, and have higher impact factors

## Open Access

- Free digital online
- Free of most copyright and licensing restrictions
  - Author typically maintains copyrights
  - Easier to use materials in future publications
  - Easier to promote works via online networking
- Costs paid by author upfront
  - Can often use grant funds
- Less restrictive access and free for readers

# Types of Open Access

**Gold**

- Immediate access
- Non-repository needed

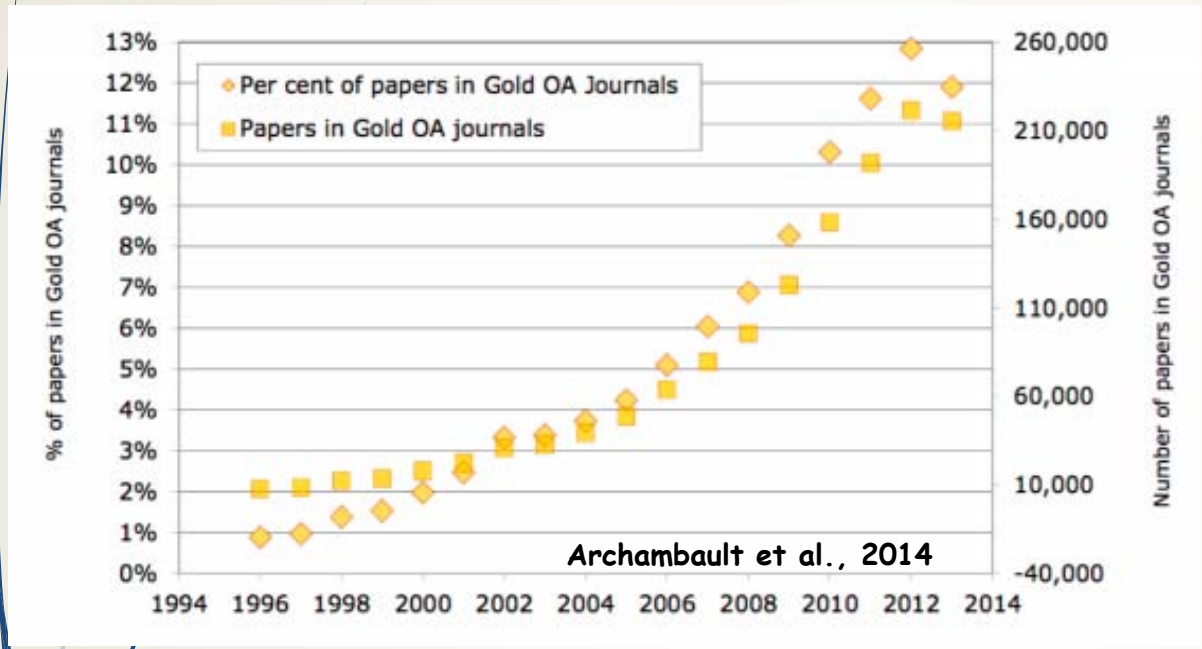
**Green**
(self-archiving)

- Place data repository (institution or central 'facility')
- Often embargo (waiting) period for access (6 – 18 months)

**Hybrid**

- Traditional subscription based company with gold open access option

# Growth in Open Access Publications

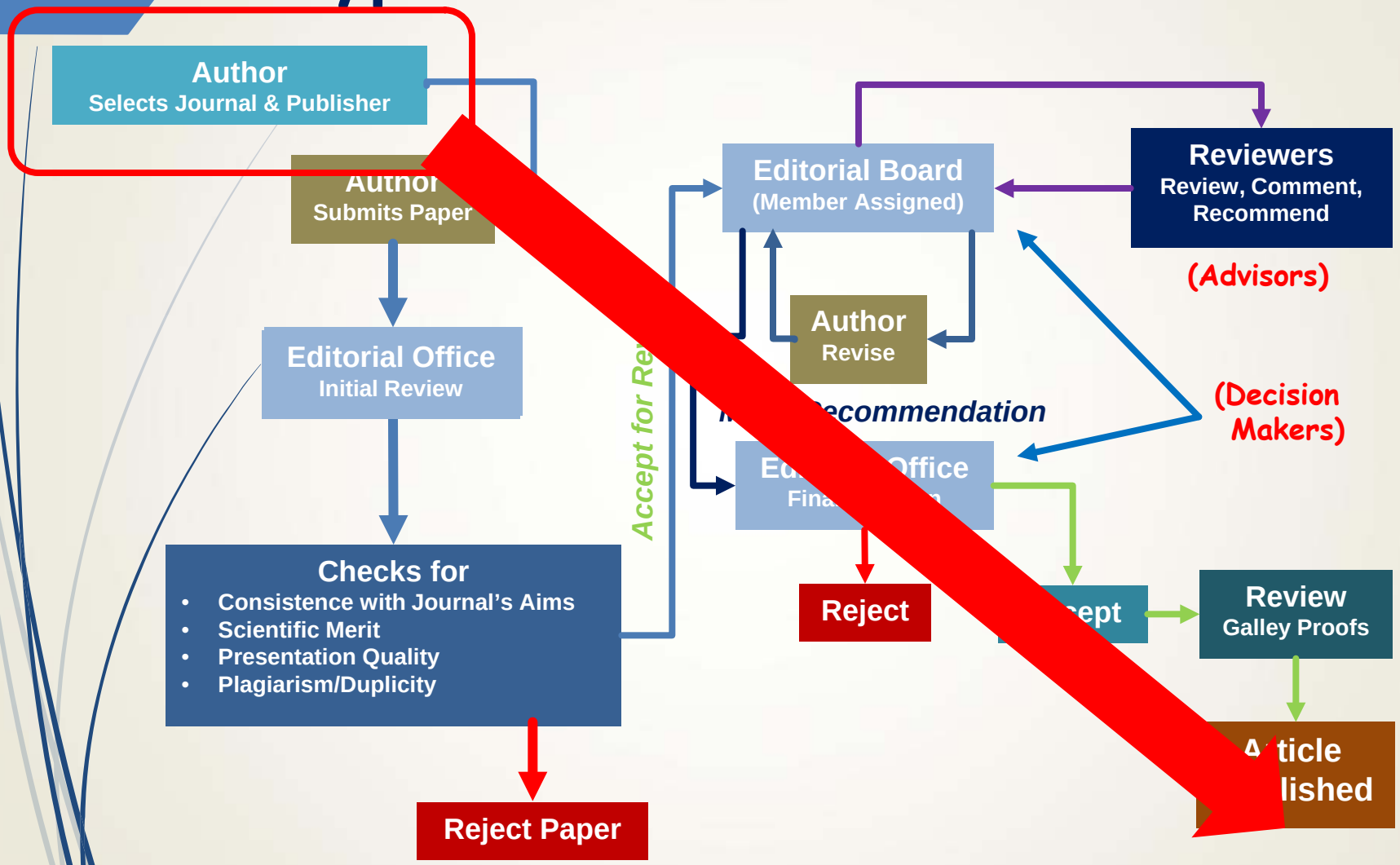



About 10,090 fully open access journals

~12 % of journals - Gold

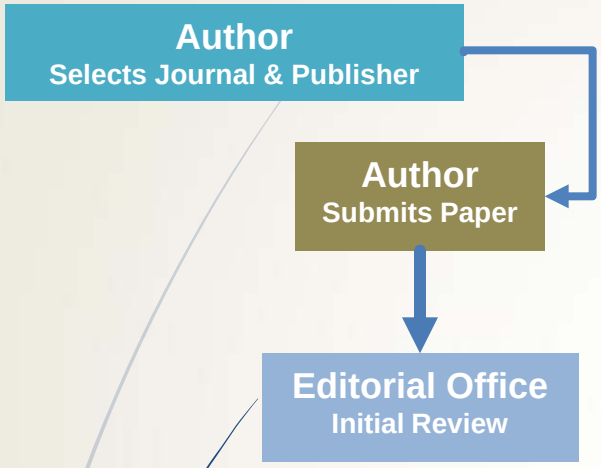
- The EU Competitiveness Council set a goal in May, 2016 for all publicly funded research conducted in the European Union to be published in 'free-to-access' scientific papers by 2020

# Typical Peer Review Process



# Journal Editors

## Duties/Tasks

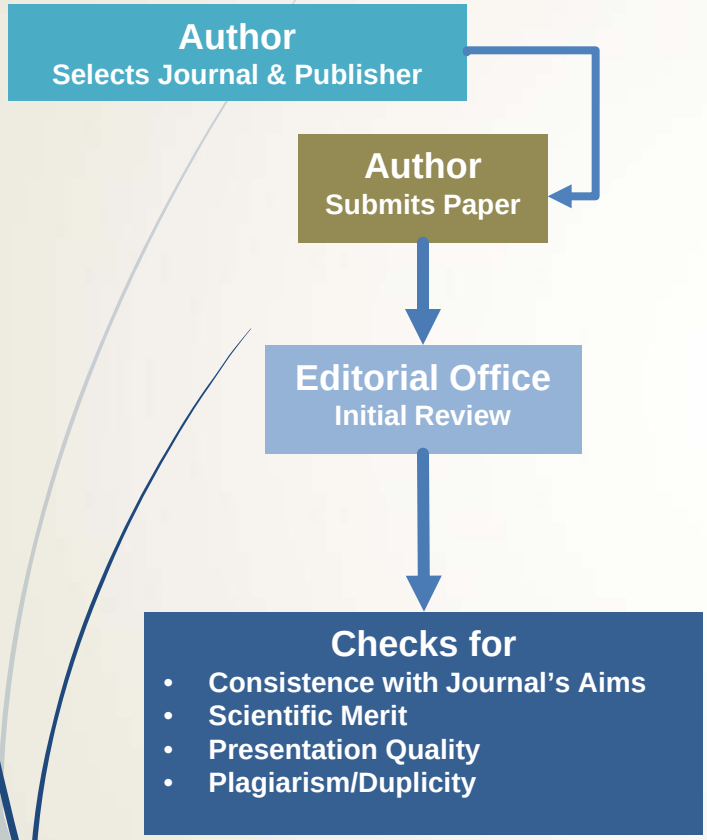



- Find papers to fill journal pages; required to make a profit or kept journal solvent
- Maintain the journal's reputation by accepting high quality papers

- Few financial benefits; often serve for free
- Editorial duties are just one of many demands on editors' time:
  - Managing manuscript flow (deadlines)
  - Working with authors and reviewers
  - Other teaching, research, and/or managerial responsibilities

**The Editor's Job is Made Easier by High Quality Papers – They Want to Accept Your Paper!**

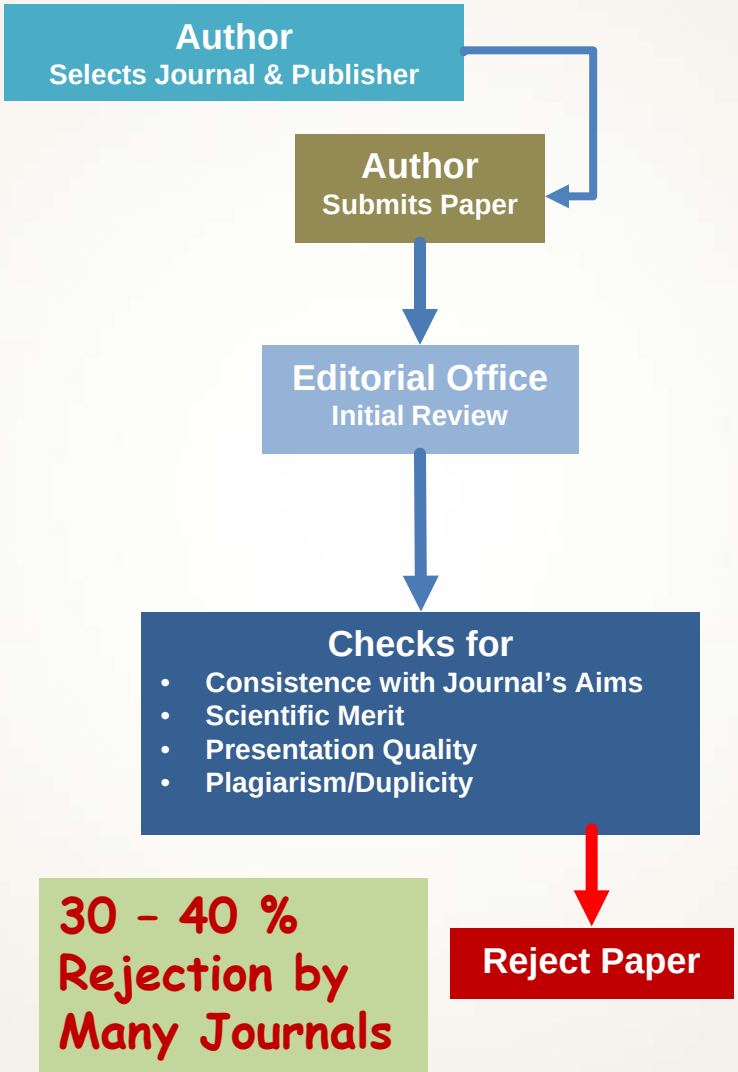
# Initial Editorial Review



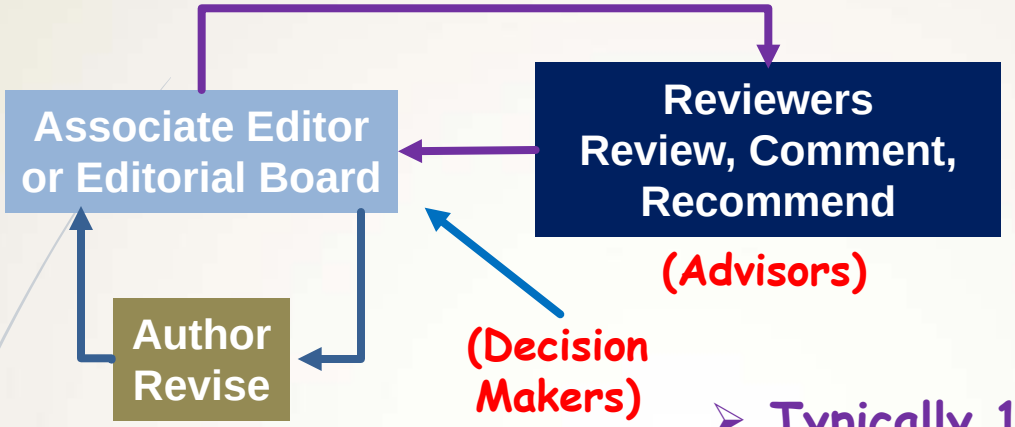

## Performed to Save Time and Effort

- Paper inconsistent with journal's aims and goals
- Manuscript does not follow submission guidelines
  - Length, figure number or quality, key elements (e.g., title, key words, section headings)
- Paper has been submitted elsewhere or is very similar to a previously published article
- Manuscript is poorly written or organized such that the paper is difficult to comprehend

# Initial Editorial Review



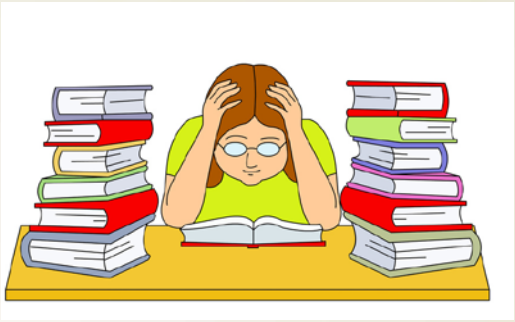
# Typical Peer Review Process




- Typically 1 or 2 reviewers
- Advisory role only

- Blind-Review: Authors do not know the reviewers
- Double-Blind Review: Authors do not know the reviewers & reviewers do not know the authors

# Journal Reviewer



- Typical review takes 4-5 hours; 8+ hrs for less experienced reviewer (STM, 2015)
- Reviewing is unpaid professional service to the discipline for which there is little reward
  - Editors often ask 6 scientists to find 2 reviewers
- Like editors, reviewers have numerous other time commitments
  - Research, writing, teaching, advising students, etc.

Reviewers want to review papers that are easy to read, well-organized and describe novel "cutting-edge" research

They Want to Accept, Not Reject, Your Manuscript

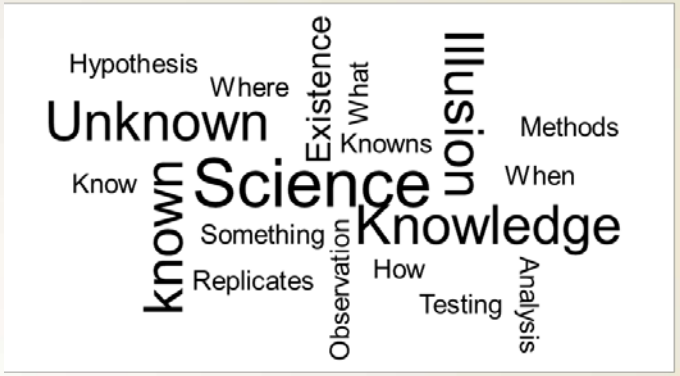
# Reviewer Expectations

Must Explain How Study Fits into the Broader (Universal) "Picture"


Key Elements that Editors and Reviewers Will Look For

Photo from NASA

# Reviewer Expectations





**Explain What is Known and Unknown**

**Key Elements that Editors and Reviewers Will Look For**

# Cited Literature

**Must be:**

- Up-to-date
- For international journal, international in scope
- Complete, cite all major articles on topic

## References


Instituto Nacional de Estadística (INE). 1 2002. Censo Nacional de Población y Vivienda 2001. http://www.ine.gob.bo/default.aspx

Instituto Nacional de Estadística (INE). 2011. Bolivia: Proyección de las esperanzas de vida al nacer por seo y periodos según región y departamento, 2000-2030. http://www.ine.gob.bo/indice/visualizador.aspx?ah=PC20131.HTM

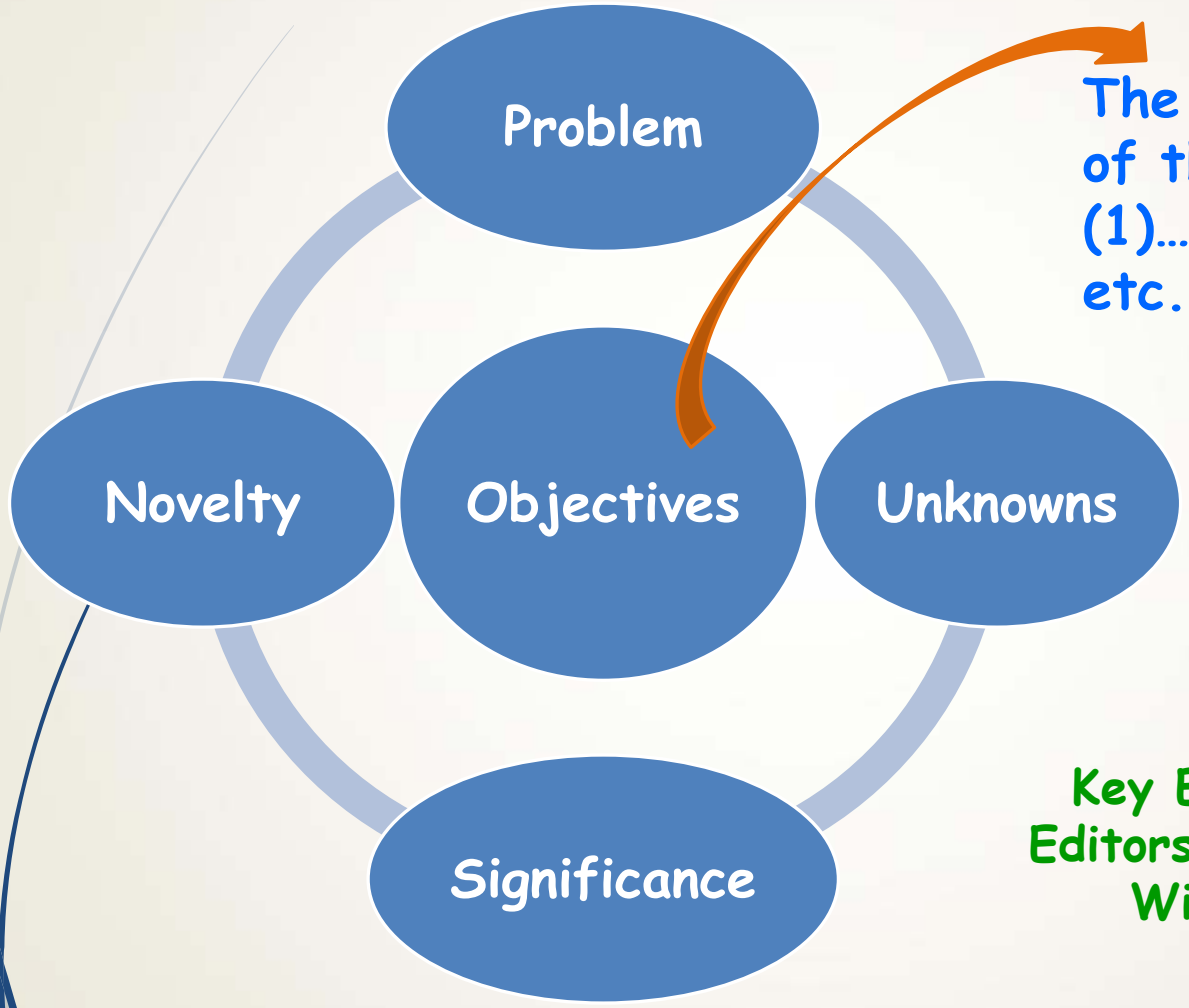
Muñoz, M.A., A. Faz, J.A. Acosta, S. Martínez-Martínez, and J.M. Arocena. 2013. Metal content and environmental risk assessment around high-altitude mine sites. Environ. Earth Sci. 69: 141-149.

Villarroel, L. F., J.R. Miller, P.J. Lechler, D. 1 Germanoski, and E. Puch. 2007. Contaminación por 2 metales pesados del sistema de drenaje Río Chilco-Río Tupiza, Sur de Bolivia. Ecología 3 en Bolivia. 42: 48-7.

Zeballos, H.H., V.G. Riveros, and J.B. Urdiniea. 2011. Seguridad Alimentaria en Bolivia. Fundacion Milenio. Coloquios Economicos No. 22. Konrad Adenauer Stiftung. pp. 104


Spanish Papers → With Primarily Chilean Authors

# Reviewer Expectations



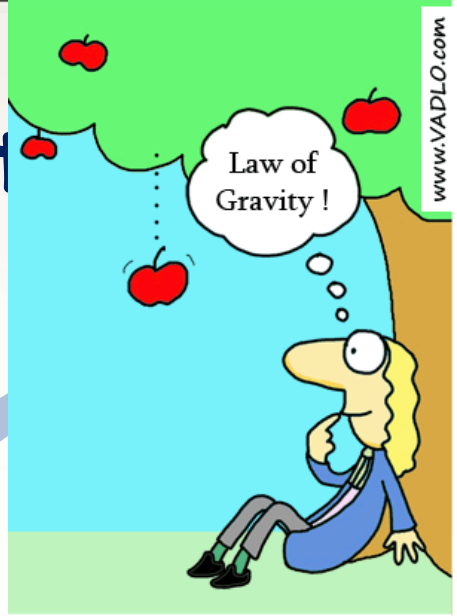

## Clear and Logical Objectives

The primary objectives of this investigation are (1)…., (2)…., (3)…. etc.

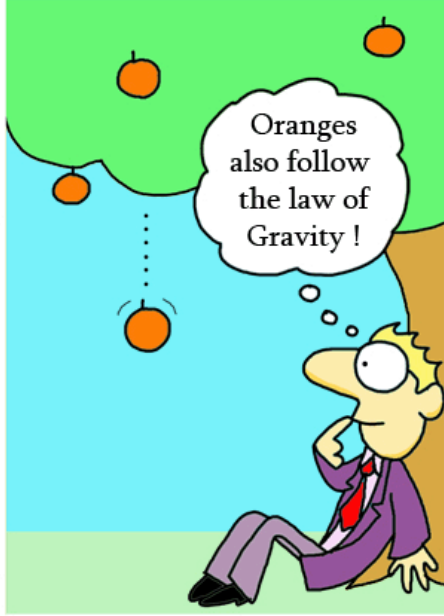
Key Elements that Editors and Reviewers Will Look For

# Reviewer Expectat

## Key Elements that Editors and Reviewers Will Look For




High Impact Paper




Low Impact Paper

Novelty

Objectives

Unknowns

Significance

What is New?

How Does it Contribute to Growth of Science?

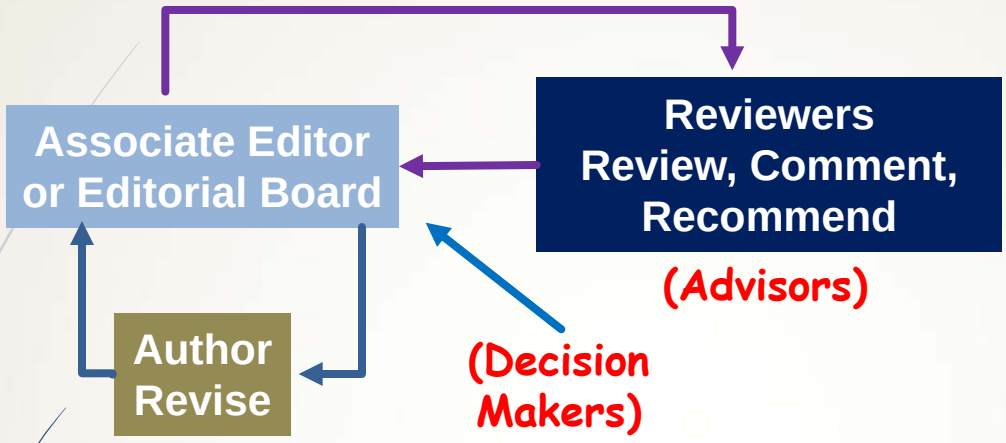
# Additional Criteria used by Reviewers to Accept/Reject Manuscript

## Reasons to Accept

- Appropriate study design & methods
  - Correct use of statistics
  - Sufficiently large dataset
  - Sufficiently explained methods with provided citations where needed
  - Adequately presented discussion of error
    - Includes accuracy and precision of measurement
- Data supported conclusions
- Quality of the writing style (clear, easy to follow, logically organized)

After Barbara Hoogenboom

# Typical Peer Review Process




- Accept as is *(Very Rarely)*
- Accept, minor revisions
- Accept, major revisions
- Reject, may resubmit
- Reject *(~typical range 25-60 %; >90% for best journals)*

# Reviewer/Editor Comments

- Possible kinds of revisions
  - Rewriting
  - Reorganizing
  - Doing additional research

**REMEMBER**

**Revising the manuscript allows author to improve it, by using comments provided by your peers working in the field!**

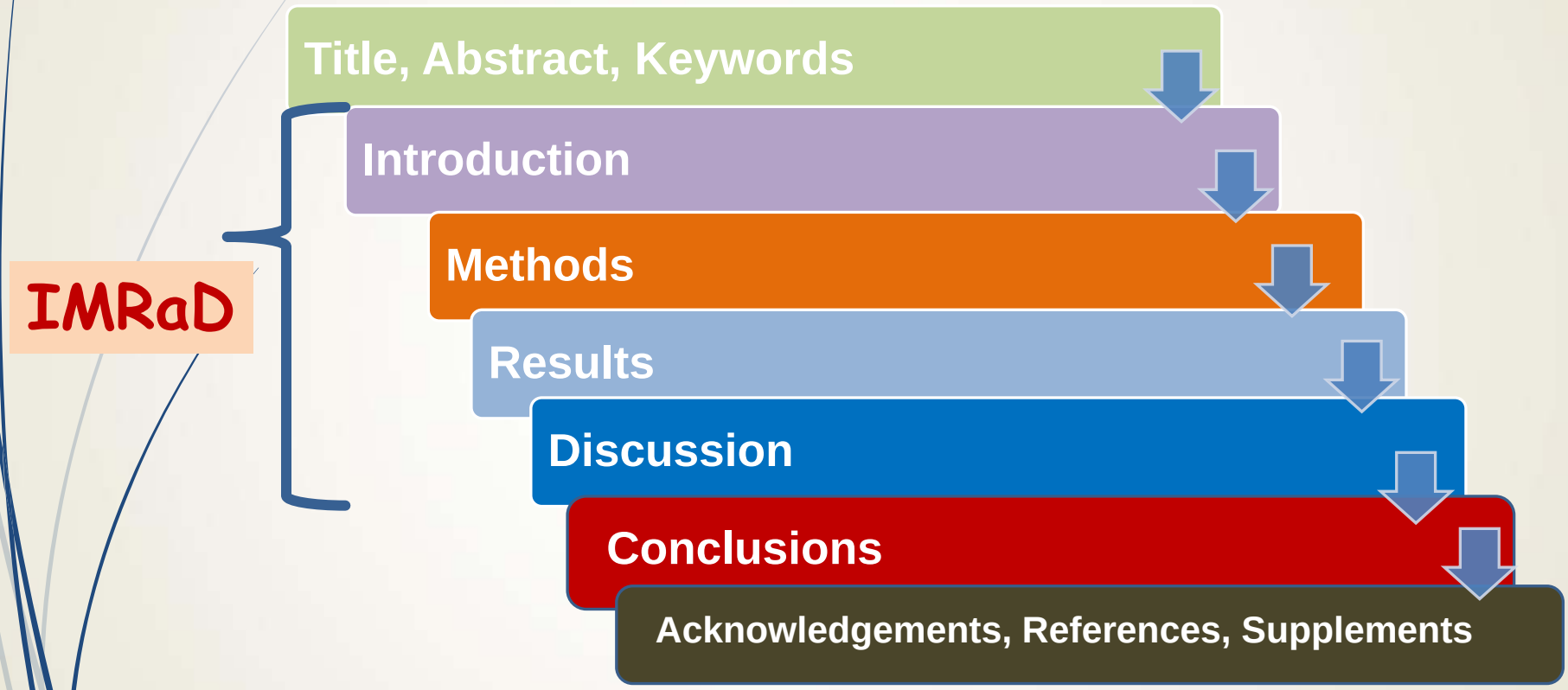
# Keys to Effective Comment Responses

- Be concise (no need to provide lengthy explanations)
- Address each comment systematically
- Keep gratitudes and agreements to a minimum. Beginning and/or end of response letter

1. Comment: Page 6: It also would have been informative to have the discharge and suspended sediment data for Needmore Gaging Station graphed to show annual flow and then the detailed flood events.

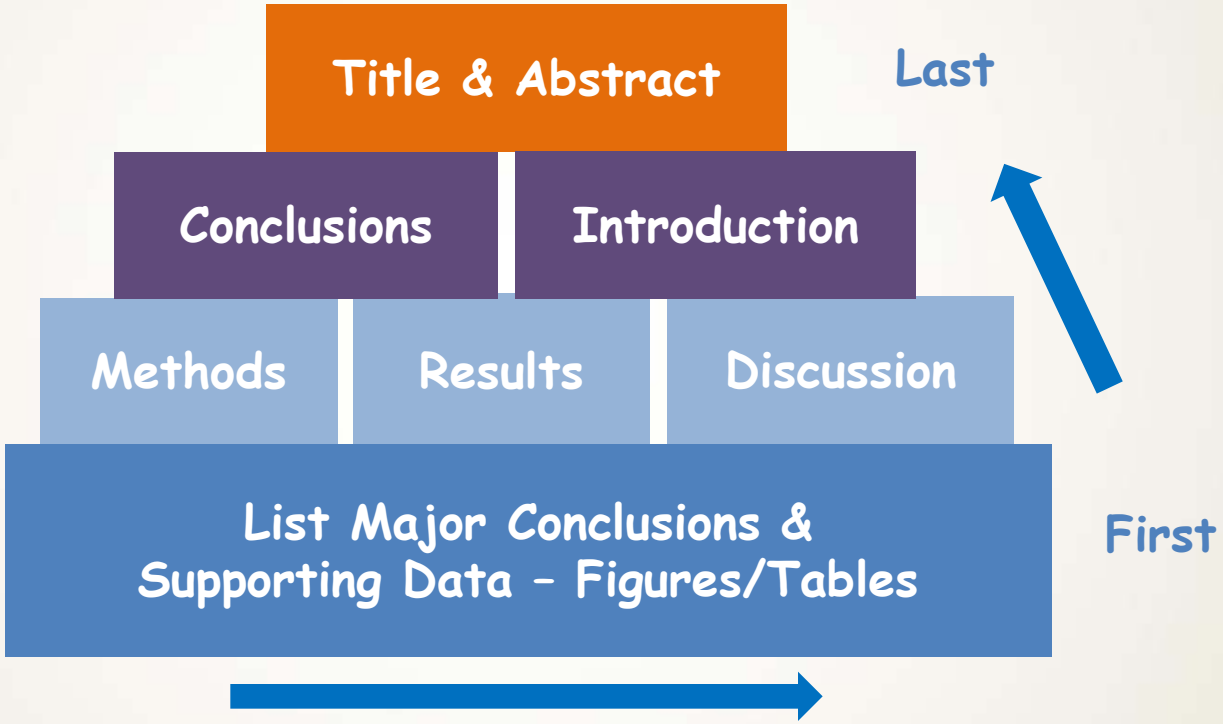
*Revision:* Long-term suspended concentration data have not been collected at the Needmore gaging station; A graph of mean annual discharge at the Needmore gage was added to Figure 6, and allows the sampled floods to be placed into an historical context.

# Basic Journal Format



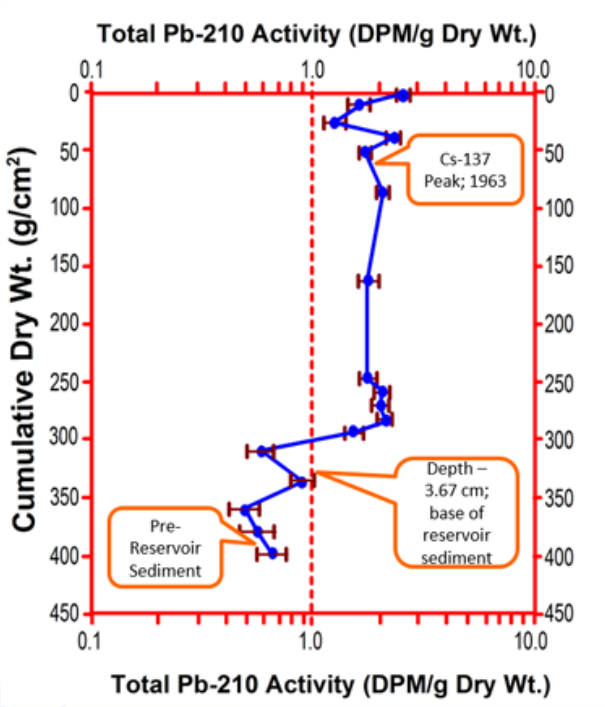

Some Journals May Not Require You to Follow this Forma

# Inverted "Conclusion-Based" Approach




After Anthony Newman, Elsevier, 2013

# Conclusions-Based Outline




"Write Around" Figures & Tables

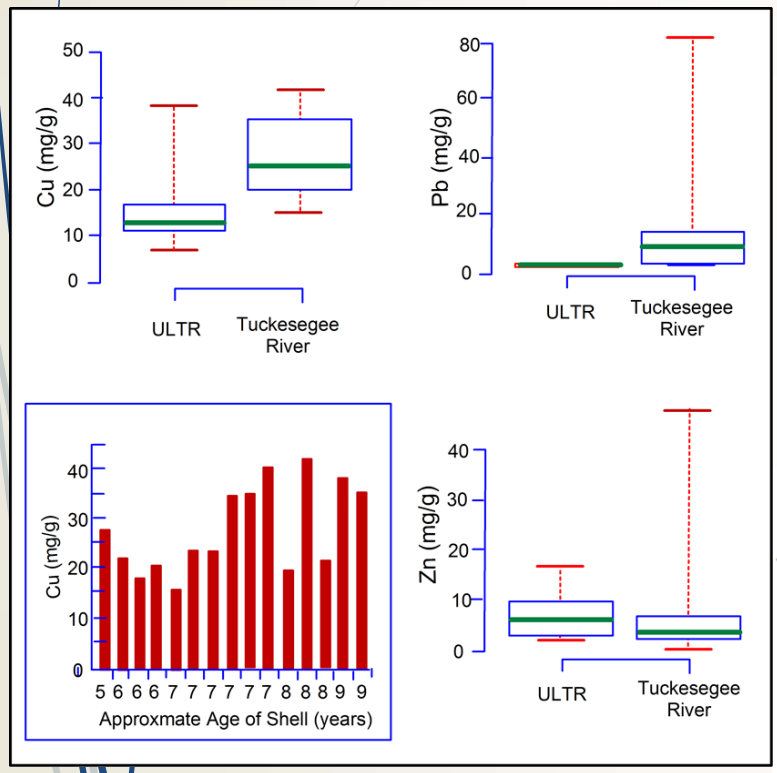
## Conclusion #1

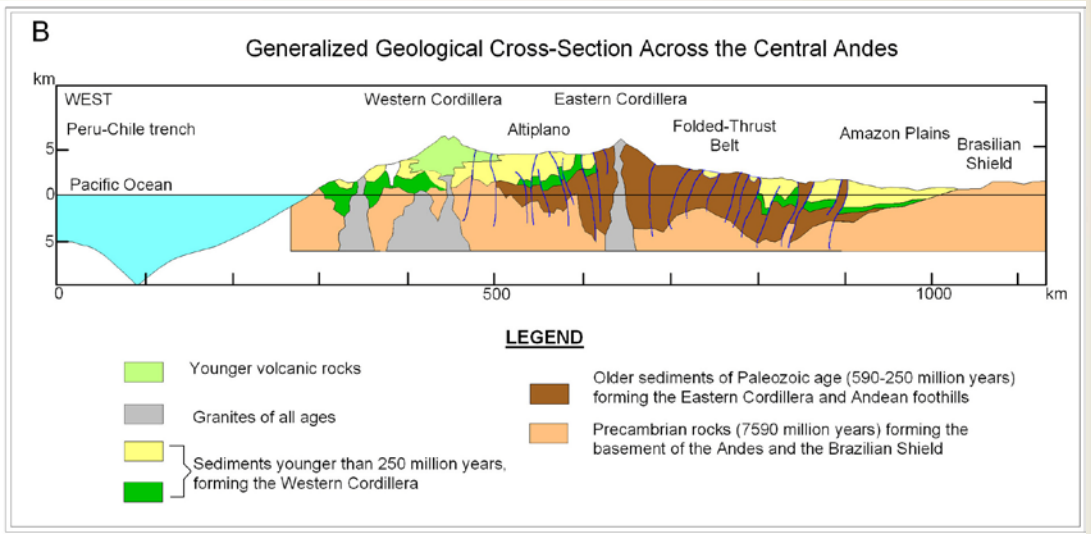
- Supporting Evidence #1, Fig. x.
- Supporting Evidence #2, Table x

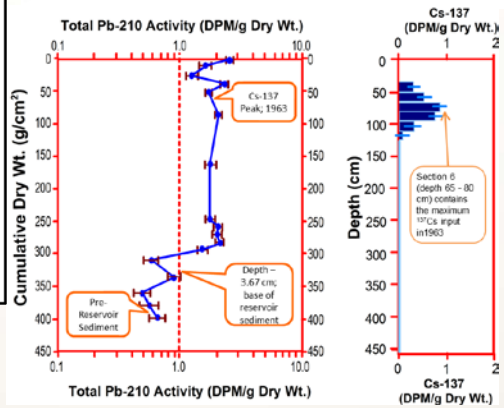
## Conclusion #2

- Supporting Evidence #1, Fig. x
- Supporting Evidence #2, Table x

# Use Figures to Make Your Argument
## ("A Picture is Worth a 1000 Words")



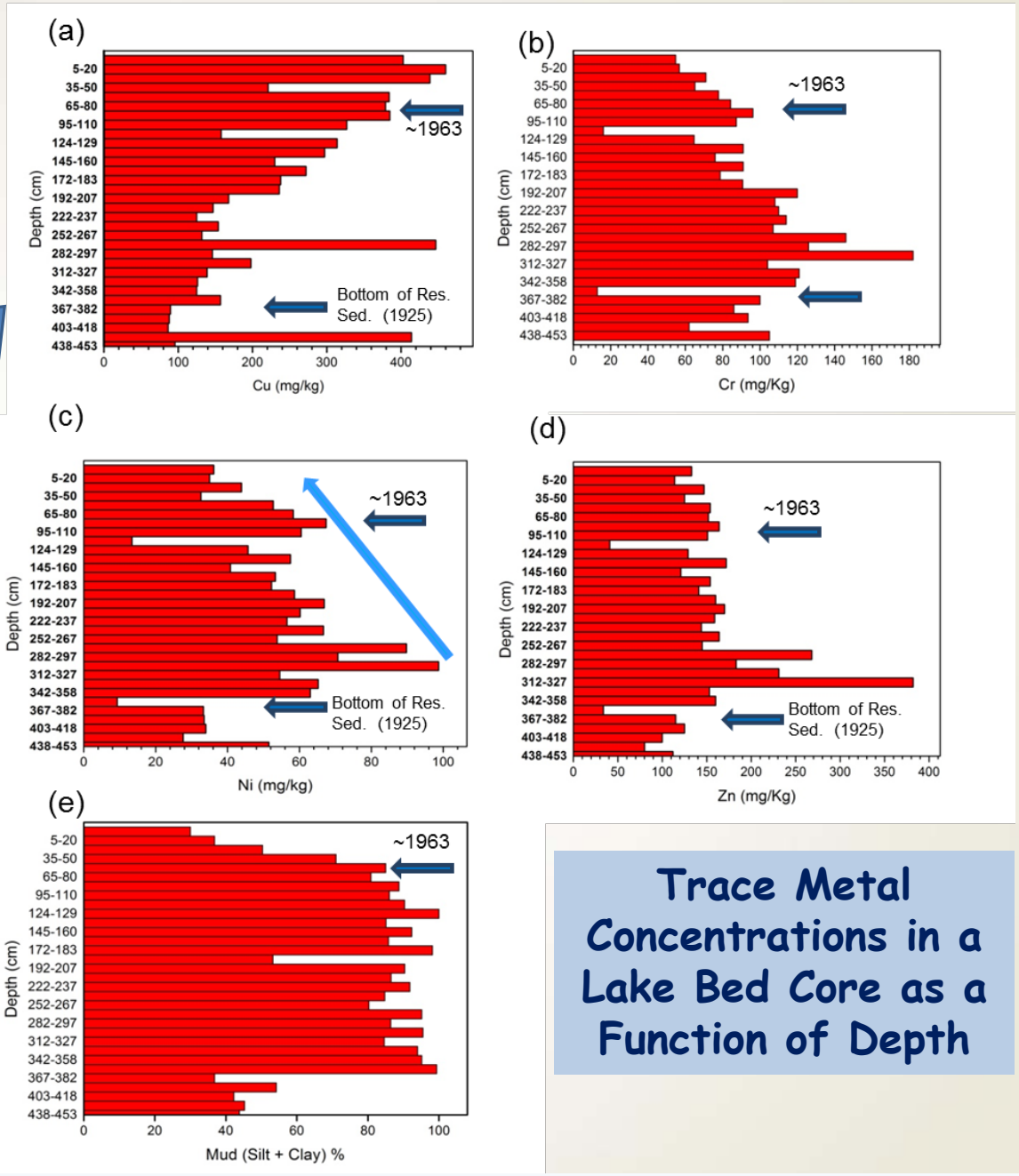




# Create Effective Figures

Comparison of Trends

Comparison of Parameters

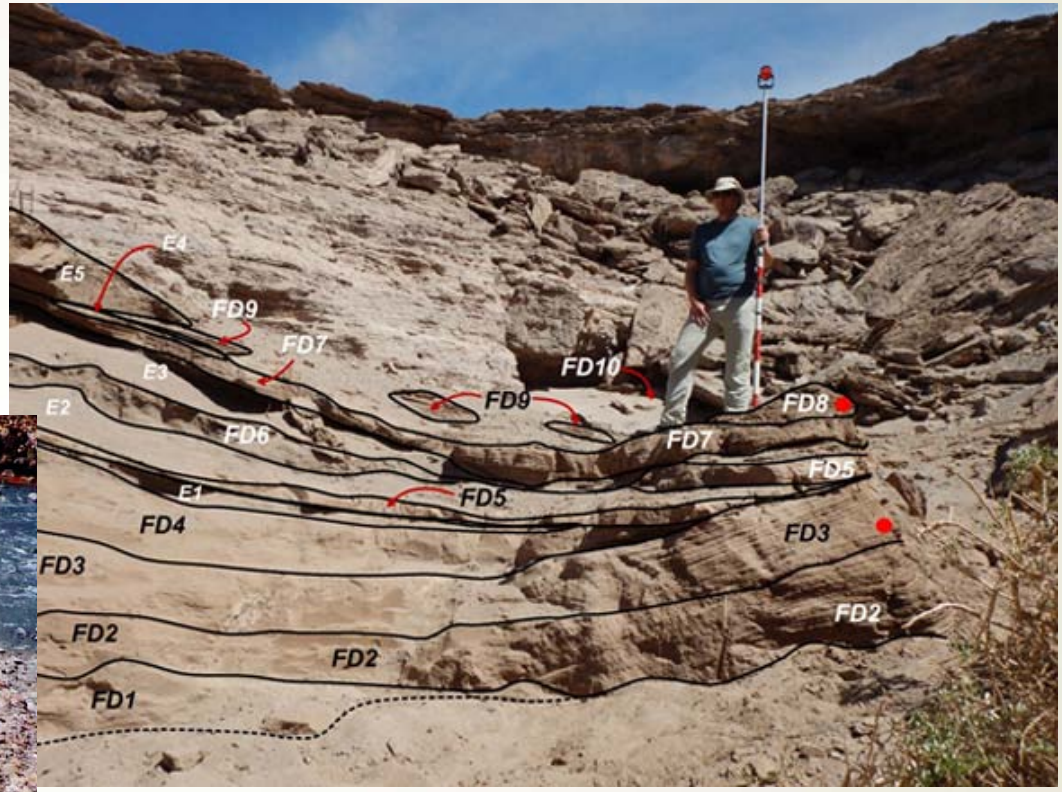



**Trace Metal Concentrations in a Lake Bed Core as a Function of Depth**

# Photo Annotation

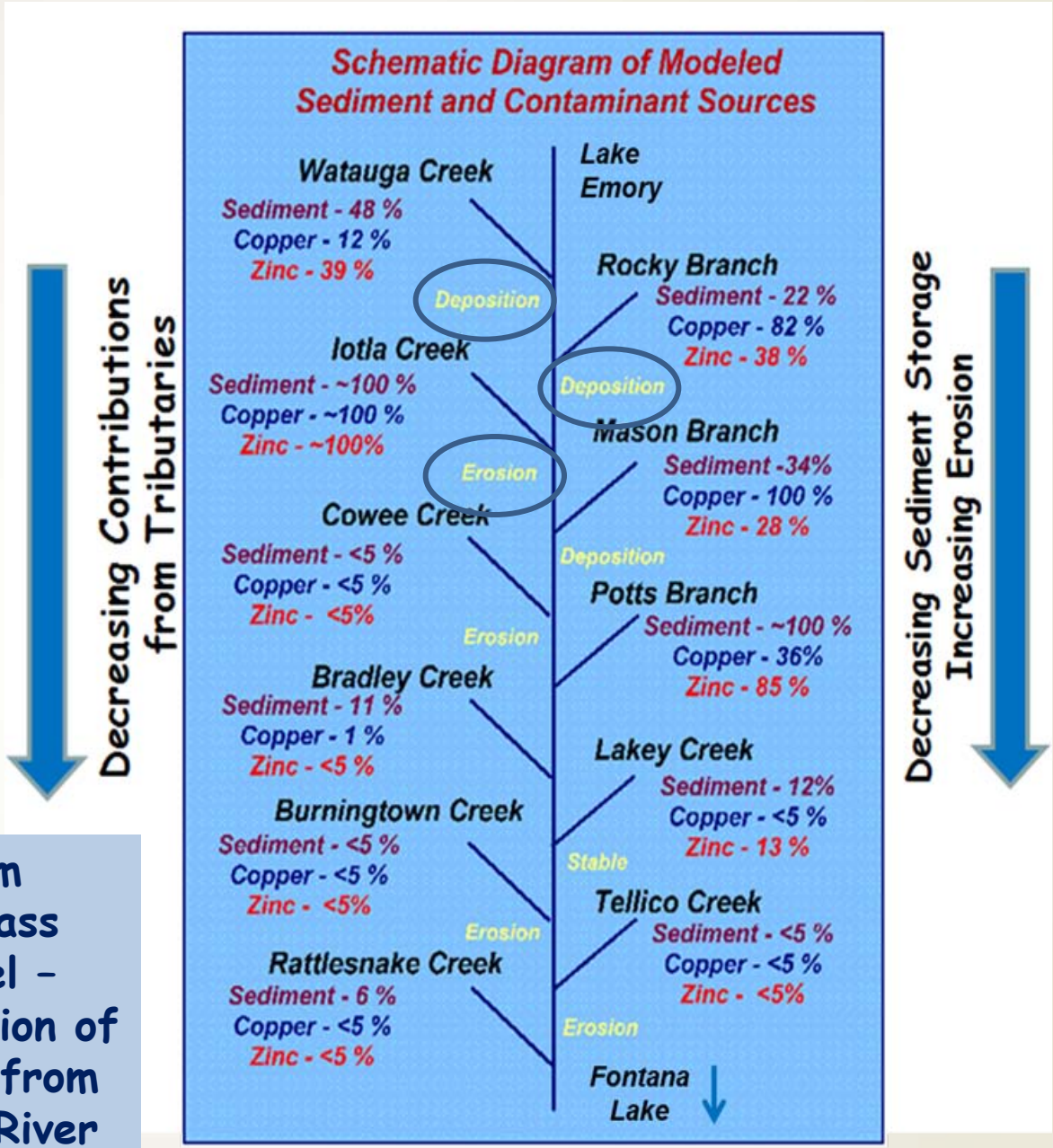
Convince Reader that Features or Relationships Exist


Acid Mine Drainage



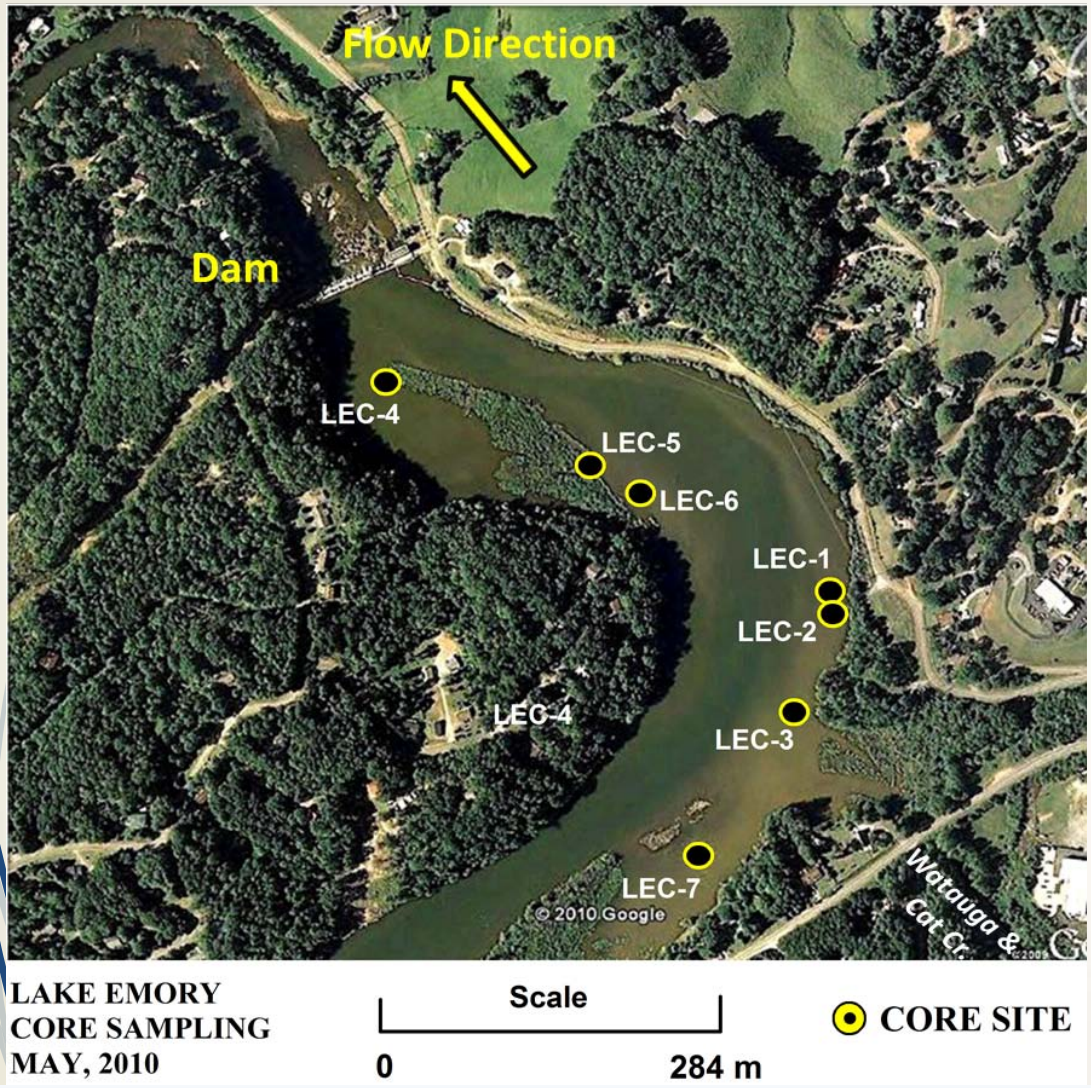

Used Here to Illustrate that Stratigraphic Units Exist and Illustrate Spatial Relationships between Them

# Effective Figures Do Not Need to be Complex




Results from Statistical Mass Balance Model – Shows Contribution of Sed., Cu & Zn from Tributaries to River

# Use Proper Labeling




## Requirements

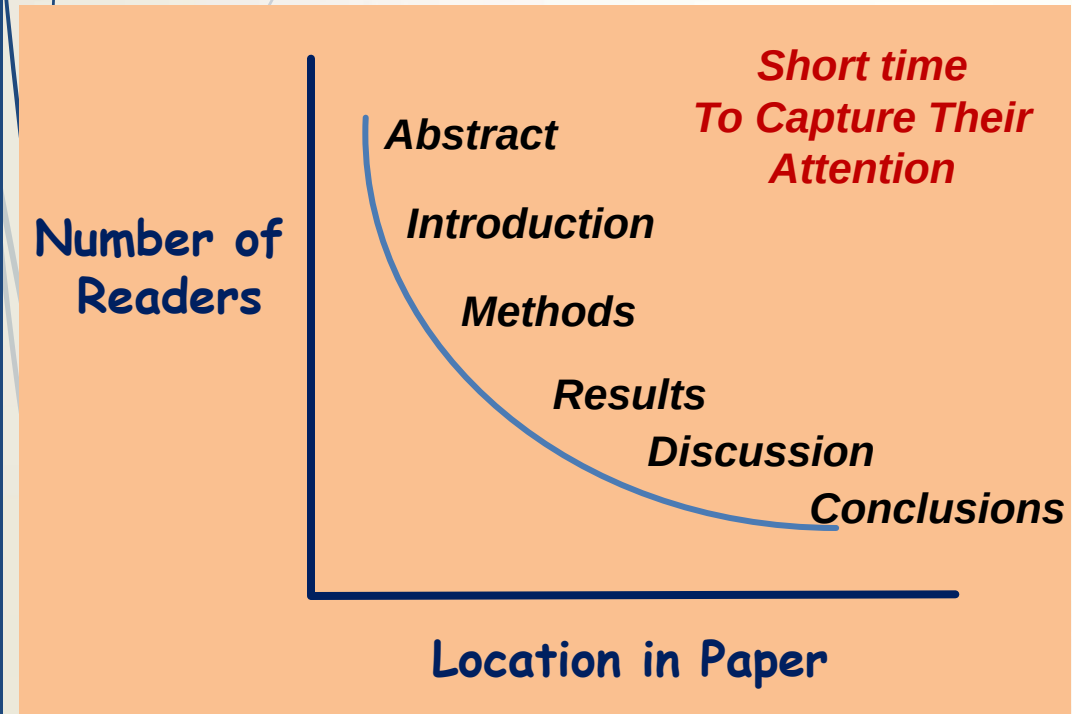
- All text large enough to read
- All features mentioned in the text must be labeled on the cited figure
- Maps - Scale

If you re-use a copyrighted figure, must get permission to do so, even if you created it!

# Write a Captivating Mystery

(Simon Peyton – Microsoft)

## Typical Reader Behavior



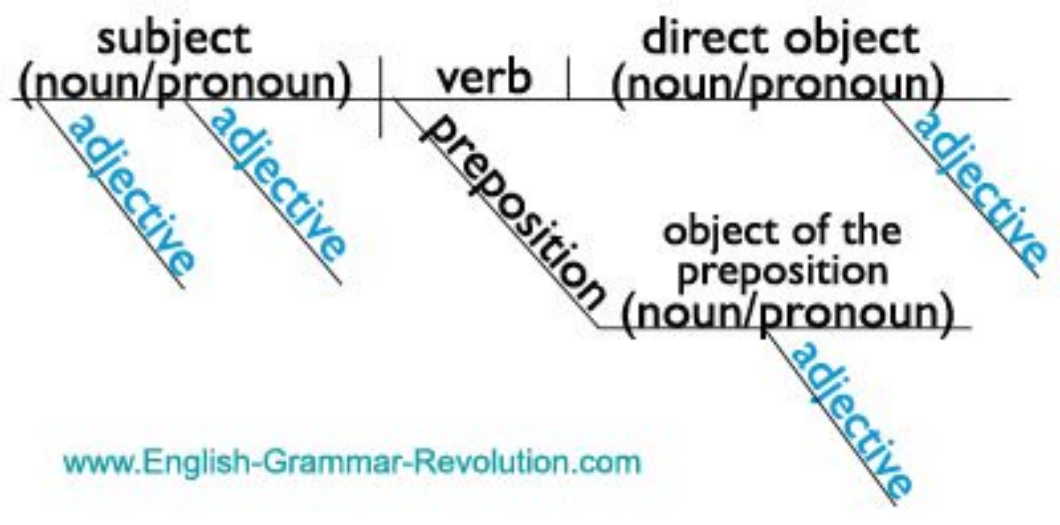

## Key Steps

- Tell a story – like you would tell a friend
- State the problem and why it is so important
- Show that it is an unsolved problem
- Present your idea on how you may solve it
- DO NOT give them the answer in the introduction

# The Paper Must Be Well-Organized and Well Written


ECS_scientific-papers_ksm

# Frequent Language Problems




# Frequent Writing Problems

## Problem: Paragraph & Sentence Length

### Paragraphs

- One Idea per Paragraph!
  - Too long: Hard to read – Usually mixes multiple themes, ideas
  - Too short: Single sentence (avoid single sentence paragraphs)

### Sentences

- Many short sentences tend to make text 'choppy' and uninteresting
- Long sentences are hard to follow

"A sentence should contain no unnecessary words, a paragraph no unnecessary sentences" (William Strunk Jr. in *Elements of Style)*

# Frequent Writing Problems

**Problem:** Sentence is too long, making it difficult to decipher meaning of the text

**Solution:** Long Sentences Can Be Changed to Two or More Sentences

- Example: Original Wording

  Lechler (1997) documented enrichments of Hg within waters of the Amazon River along a reach located approximately 80 km west of Manaus, and found that it possibly originated from anthropogenic sources including mining activity near Porto Velho, a town now consisting of more than 1000 gold miners, nearly all of whom conduct some form of Hg amalgamation mining.

# Frequent Language Problems

**Problem:** Sentence is too long, making it difficult to decipher meaning of the text

**Solution:** Long Sentences Can Be Changed to Two or More Sentences

- Example: Alternate Wording

Lechler (1997) documented enrichments of Hg within waters of the Amazon River along a reach located approximately 80 km west of Manaus.~~,~~ ~~and~~ ~~He~~ found that ~~#~~ Hg possibly originated from anthropogenic sources including mining activity near Porto Velho.~~,~~ Porto Velho is a town now consisting of more than 1000 gold miners, nearly all of whom conduct some form of Hg amalgamation mining.

# Frequent Language Problems

## Problem: Sentences contain words redundant or meaningless text

### Avoid Meaningless Phrases

| Original | Revision |
|---|---|
| The membrane has a tendency to isolate some compounds. | The membrane tends to isolate some compounds |
| In the final analysis, the method worked | The method worked |
| The editors are in the process of reviewing the paper | The editors are reviewing the paper |
| *It seems that* it is correct. | It *seems* correct |

From William Strunk, The Elements of Style, 1959

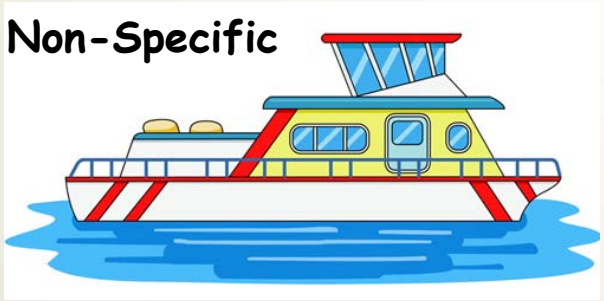
### Avoid Redundant Words

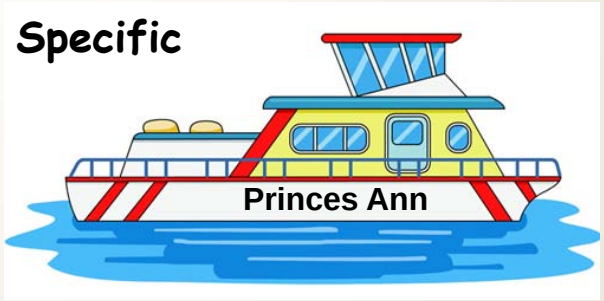
| Original | Revision |
|---|---|
| New innovation | Innovation |
| Period of four days | Four days |
| Refer back | Refer |
| Repeat again | Repeat |
| Longer in length | Longer |
| In the field of science | In science |
| Personal opinion | Opinion |
| End result | Result |

# Frequent Language Problems

## Grammar Issue: Articles

- Articles (a, an, the)
  - "a" and "an" refer to non-specific instances of the noun
  - "the" refers to specific instances of the noun
  - Correct usage is difficult for Asian language speakers
  - Non-native writers often omit needed articles




Modified from Dr. Patrick Cabe

# Frequent Language Problems

## Grammar Issue: Number Disagreement

- Noun-Pronoun
  - ***Example 1:*** Adolescents felt a strong sense of belonging to ~~his or her~~ [their] research team.
    - Plural noun (adolescents), must use plural pronoun (their).
  - ***Example 2:*** Smith described molecular function, and divided ~~them~~ [it] into six categories.
    - Singular noun (function), must use singular pronoun (it).

Common pronouns include *I, me, he, her, him, it, she, them, they, their, us,* and *we.*

The pronoun must match the word it replaces--singular or plural, and, sometimes, masculine or feminine.

# Frequent Language Problems

## Grammar Issue: Unclear Pronoun Antecedent

- **Antecedent:** Noun or noun phrase to which the pronoun refers
- **General rule:**
  - Readers look back to the most recent reasonable referent (noun) that ***matches in number and gender***
- **Problem:** Pronouns may have unclear antecedents (references), leading to confusion
  - **Common mistake:** Pronoun matches the **closest** noun (…but the closest noun **is not** the actual antecedent)
- **General solution:** Replace the pronoun with a noun or noun phrase
- **Alternate solution:** Keep the pronoun close enough to the replace word so the reader knows whom or what you are talking about

Modified from Dr. Patrick Cabe

# Frequent Language Problems

## *Example 1: Unclear Pronoun Antecedent*

### Original Wording

- Amenable colleagues are characterized as straightforward, trustworthy, altruistic, modest, and tender. **It implies** that amenable individuals value harmony in interpersonal relationships.

✓ **Problem:** Unclear antecedent pronoun, "it"

### Alternative wording

Amenable colleagues are characterized as straightforward, trustworthy, altruistic, modest, and tender. **These characteristics imply** that amenable individuals value harmony in interpersonal relationships.

Modified from Dr. Patrick Cabe

# Frequent Language Problems

## Sentence Issue: Passive voice construction

- Active voice form: Agent → active verb form → object
- Passive voice form: Object → passive verb form → agent

The dog bit the boy. Active

The boy was bitten by the dog. Passive

Active

Scientists conducted experiments to test the hypothesis.

Experiments to test the hypothesis were conducted by the Scientists.

Passive

Examples & Images from https://owl.english.purdue.edu/owl/owlprint/539/)

# Frequent Language Problems

## Sentence Issue: Passive voice construction

- Problems with passive voice sentences:
  - Agent often omitted → meaning unclear
  - Passive voice sentences are often longer & too complicated

- ***Examples***
  - Passive form: "It has been shown that…" [by whom?]
  - Active form: "Smith (2014) showed that…"
  - Passive form: "Participants were recruited from…" [by whom?]
  - Active form: "We recruited participants from…"
    - ✓ Comment: Use of personal pronouns (I, we) to avoid passive voice construction is generally acceptable

Modified from Dr. Patrick Cabe

# Frequent Language Problems

## Punctuation issues: Commas

- Comma placement can completely change sentence meaning

***Example 1:***

- Don't, stop throwing the ball at your brother.

Now, remove the comma!

Don't stop throwing the ball at your brother.

# Frequent Language Problems

Sentence Issue: Comma Splices

- Two independent clauses joined by a comma
  - Example: We analyzed trace metal concentrations from a short reach of the river, whether concentrations in the remainder of the river would show the same characteristics is an interesting question.
- Solutions for comma splices
  - Start a new sentence (often best)
  - Replace the comma with a semi-colon (;)
  - Insert a conjunction (and, but)

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# Frequent Language Problems

Comma splice, Original Wording:

- We analyzed trace metal concentrations from a short reach of the river, whether concentrations in the remainder of the river would show the same characteristics is an interesting question.

Alternate wording (start a new sentence):

- We analyzed trace metal concentrations from a short reach of the river. Whether concentrations in the remainder of the river would show the same characteristics is an interesting question.

Alternate wording (insert a semi-colon):

We analyzed trace metal concentrations from a short reach of the river; whether concentrations in the remainder of the river would show the same characteristics is an interesting question.

Alternate wording (insert a conjunction):

We analyzed trace metal concentrations from a short reach of the river, but whether concentrations in the remainder of the river would show the same characteristics is an interesting question.

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# Frequent Language Problems

- **Parenthesis use**
  - **Nested parentheses – avoid these**
    ***Example:*** **We used the XYZ test (3rd ed. (Smith, 1995)).**
  - **Solutions**
    - ✓ **Semi-colon: We used the XYZ test (3rd ed.; Smith, 1995).**
    - ✓ **Brackets: We used the XYZ test (3rd ed. [Smith, 1995]).**

- **Common Latin abbreviations (e.g., i.e., et al.)**
  - **"i.e." and "e.g."**
    - ✓ **Use inside parentheses (e.g., for the river)**
    - ✓ **Outside parentheses, use words (that is, for example)……; for example, the river exhibited…**
  - **"et al." – typically used only with references**

Modified from Dr. Patrick Cabe

# Determine if your Paper is Well-Written and Organized?

- A paper is well-written if a reader who is not involved in the work can understand every single sentence in the paper (Nancy Dixon, IJQHC, 2001)
  - Have one or more individuals read the paper prior to submission
  - Have them list the most important conclusions in the paper
  - Check to see if these are the items that you want the reader to get out of the paper
- Consider waiting a week or two before submission – read it again and looks for errors

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- Zhu et al., *Scientific Reports*, 25;5:8542 (2015)
- Li et al., *Medical Oncology,* 32(4):554 (2015)
- Hu et al., *J. Renewable Sustainable Energy,* 7, 013131 (2015)
- Yin et al., *Gene,* 561(2):292 (2015)
- Jiang et al., *Journal of Materials Science*, 26:158 (2015)
- Lu et al., Optics Express, 23(6):7248 (2015)
- Zhang et al., *Glycoconjugate Journal, 3*2(1-2):39 (2015)
- Rao et al., *FEBS Open Bio,* 5:132 (2015)

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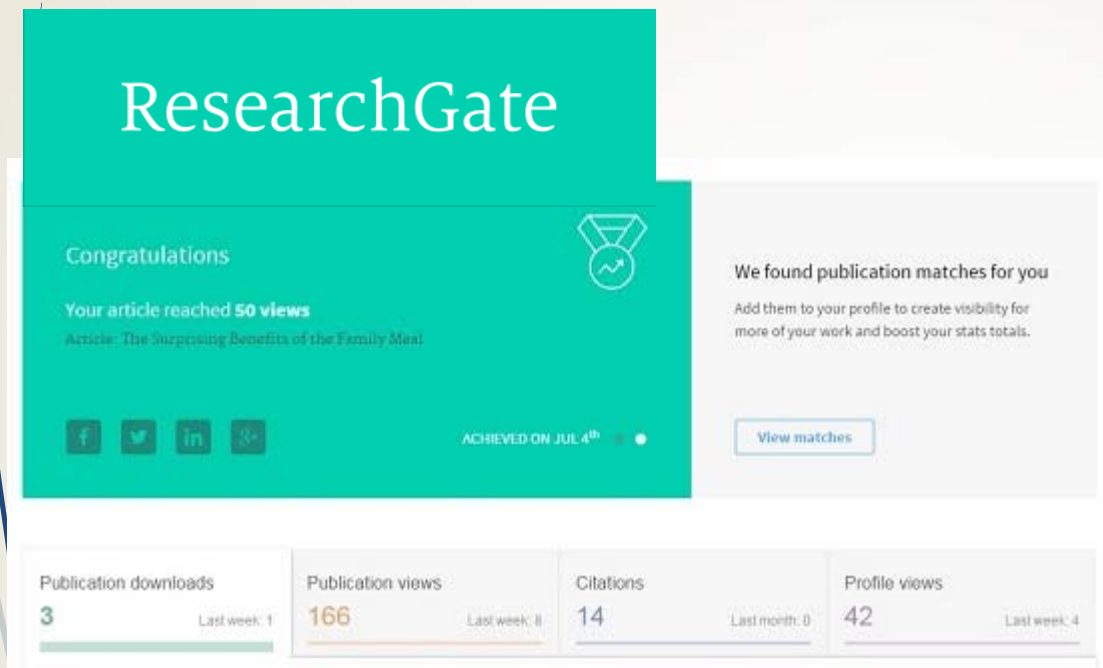



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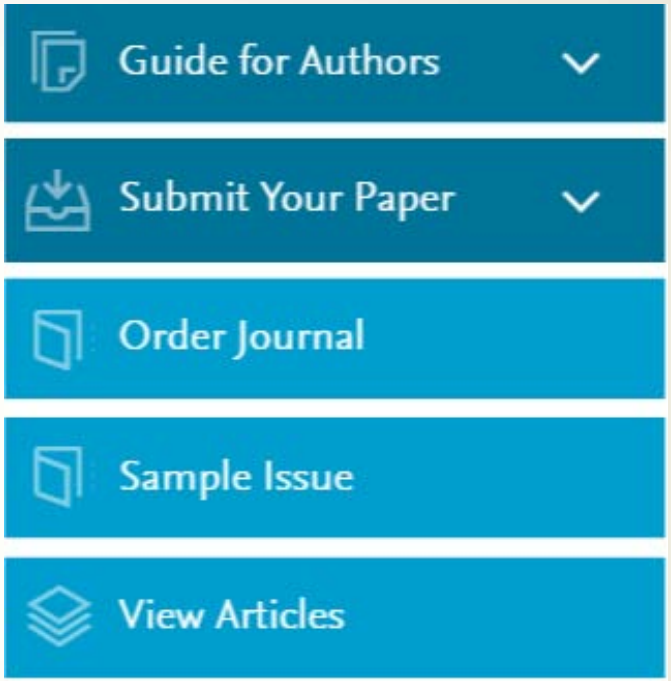
# Choosing the Correct Journal

## Selection Criteria

- Audience/Topical Area
  - Must meet aims and goals of journal
- Geographical distribution
  - Local, regional, international
- Types of articles accepted
  - Original works, review articles, letter, short communication, etc.
- Length of articles accepted
- Time required for publication

## Environmental Earth Sciences




## Journal of the American Water Resources Association

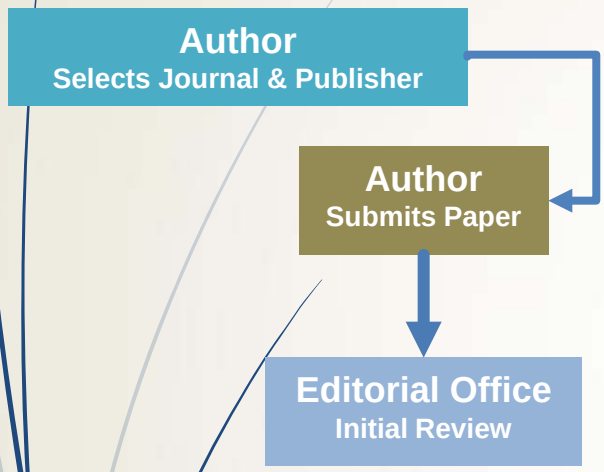
Aims and Scope

**Determines your Audience**

*JAWRA* seeks to be the preeminent scholarly publication on multidisciplinary water resources issues. *JAWRA* papers present ideas derived from multiple disciplines woven together to give insight into a critical water issue, or are based primarily upon a single discipline with important applications to other disciplines. Papers often cover the topics of recent AWRA conferences such as

# Paper Submission & Review Process

## Cover Letter




- Make it Personal - Use the editor's name and the journal title
  - Do not use form letter
- Market your paper – explain why the paper is worth publishing
  - Do not simply repeat what is in the abstract
- Suggest possible reviewers
  - Use people who know you and your work
  - Use prominent scientists in the field, or who you cite in the paper

- State that the paper has not been submitted elsewhere
- If potential conflicts of interest exist, acknowledge them
- Include contact information for corresponding author

# Considerations for Revising the Manuscript

- IF EDITORS REQUEST CHANGES TO THE PAPER, THEY MUST BE ADDRESSED UNLESS IT HAS BEEN DISCUSSED IT WITH THE EDITOR
- Reviewers are not always correct!
  - If the comment influences the conclusions and you disagree with it, contact editor and make your case
  - Always be polite, but point out how/why the reviewer is wrong; use references if possible
- Revise the manuscript as fast as possible without jeopardizing quality
- If a timeline is given for your revision that you cannot meet, contact the editor and explain the situation. Most are flexible (within limits)

# Frequent Language Problems

## Grammar Issue: Number Disagreement

- Subject-verb (frequent problem: matching closest noun)
  - ***Example 1:*** Each of these papers ~~have~~ [has] different authors.
    - Singular subject (each; NOT "papers"), use singular verb (has)
  - ***Example 2:*** The set of analyses ~~were~~ [was] inclusive.
    - Singular subject (set), use singular verb (was)

# Frequent Language Problems

## Grammar Issue: Verb tense

- Generally, use present tense for existing or on-going actions and relationships
  - *Example 1:* Figure 1 ~~showed~~ [shows] that contaminant concentrations in river sediments increased this year.
  - *Example 2:* Existing regulations ~~controlled~~ [control] contaminant discharges to the river.
- Generally, use past tense for completed actions
  - *Example 1:* The study design ~~takes~~ [took] into account two issues. It ~~aims~~ [aimed] to study…..
  - *Example 2:* In this study, researchers ~~are~~ [were] required to take notes on their laboratory observations.



Modified from Dr. Patrick Cabe

# Frequent Language Problems

## Punctuation Issues: Apostrophes

- Apostrophes: Two major uses
  - To show verb contractions (but...many English irregular verbs)

    ***Example:*** The car won't (will not) start.

    ***Example:*** She isn't (is not ) here.

    Avoid using Contractions in Technical Writing

  - To show possessives

    ***Example:*** That is the professor's chair.

    ***Example:*** That is the dog's bone.

  - Apostrophes used with "it" – an odd case

    Use an apostrophe ONLY in the contraction of "it is" (it's)

    DO NOT use an apostrophe for the possessive of "it" (its)

Modified from Dr. Patrick Cabe

# Frequent Language Problems

## Some Special Issues

- **Informal language:** Generally, avoid using it
  - Metaphors – intrinsically ambiguous/unclear
    *Example:* "Replication is the lifeblood of science"
  - Slang: ambiguous -- depends on time and place
    *Examples:* cool, nail in the coffin
  - Allusions: ambiguous -- assume relevant knowledge
    *Examples:* Judas, Achilles' heel, Scrooge, utopia
  - Idioms: ambiguous -- often culturally-dependent
    *Examples:* kick the bucket, tie the knot, piece of cake

Modified from Dr. Patrick Cabe

# Frequent Language Problems

## Anthropomorphizing Nouns

- ***Examples:***
  - "the results found that…"
  - "the data found that…"
- Instead, use: "the results/data indicated
  - Or alternatively use [demonstrated, showed, revealed, suggested, documented]…"

Modified from Dr. Patrick Cabe

# Methods

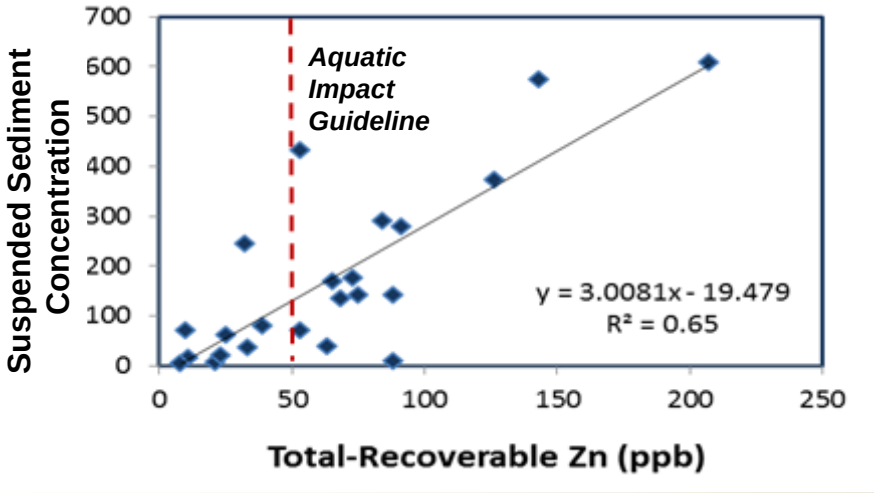
**Goal:** Provide other scientists with enough information that they can assess the validity of the work and replicate the work that you have done


**Include:**

- Description of approach used (first paragraph)
  - Preparations that were undertaken prior to analysis
- Description of the procedures/protocols
  - Provide references for commonly used procedures
  - Provide information on instruments used in the analysis
  - Provide information on the error inherent in your analyses
- Information on the population/sample size
  - Statistical analyses that were used
  - Statement that the researchers used ethical methods for the treatment of humans and animals
- Explanation of why you used the procedures that you did

# Results

- The 'raw' outcome(s) of your analysis, including trends and/or relationships between collected data
- NO INTERPRETATIONS
- Only include results that support a conclusion described in the discussion
- Manipulate the results so that the reader is able to quickly and easily determine trends, statistical outcomes, etc
  - Rely heavily on tables and figures




## Valid Results Statement

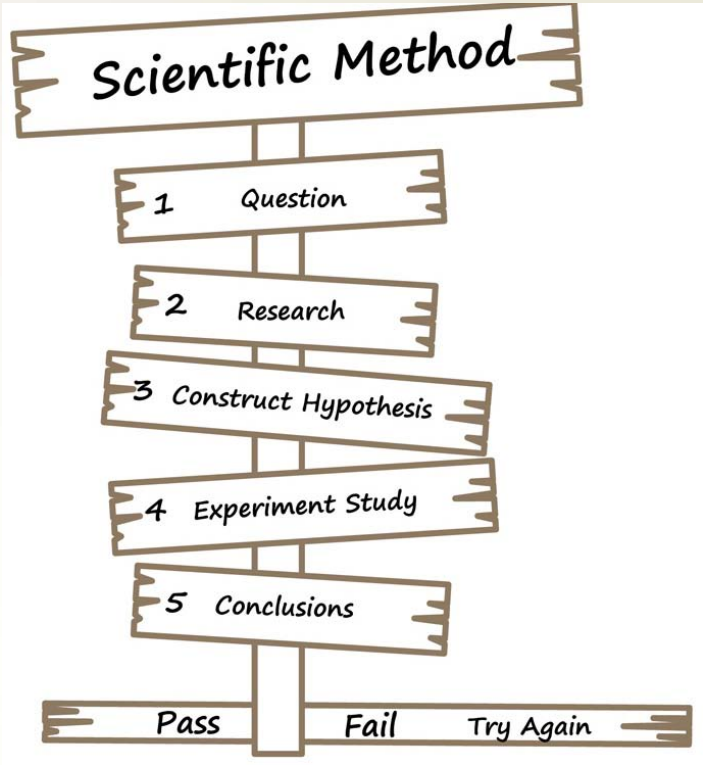
- A moderate relationship exits between SSC and Zn concentration, and it is characterized by a regression coefficient of 0.65.

## Incorrect Results Statement

- The statistical relationship between SSC and Zn content suggests that Zn is primarily associated with suspended sediment.

# Discussion

- **Goal:** To interpret the results of your analysis, and to point out its significance
- Key Components
  - Use all data presented in the results
  - Integrate your conclusions with the current scientific literature
  - Point out how your study supports or contradicts previous analyses
  - State how it advances the field
- Do not over-state your results
- If providing an opinion, be clear and upfront about it




**NEVER USE THE WORD 'PROVES'!**

- Use possible, likely, suggests, implies, indicates
- Use statements like "It was hypothesized that…."

# Title

- Describe content of paper in fewest words possible
- If the paper is geographically localized, note where the study occurred
- Avoid use of scientific jargon or uncommon abbreviations
- Strive for short, catchy titles that will capture the readers attention

# Keywords

- Extremely important – determines whether your paper can be found
- Be specific – but not so specific that your paper cannot be identified
- Avoid use of vague terms
- Test your keywords to see if they can be used to find other papers cited in the manuscript

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