ЗАСІДАННЯ СНТ 01.03.19

Steps to organizing your thesis

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Prepare the **figures and tables**.

Write the **Methods**.

Write up the **Results**.

Write the **Discussion**. Finalize the Results and Discussion before writing the introduction. This is because, if the discussion is insufficient, how can you objectively demonstrate the scientific significance of your work in the introduction?

Write a clear **Conclusion**.

Write a compelling **introduction**.

Write the **Abstract**.

Compose a concise and descriptive **Title**.

Select **Keywords** for indexing.

Write the **Acknowledgements.**

Write up the **References.**

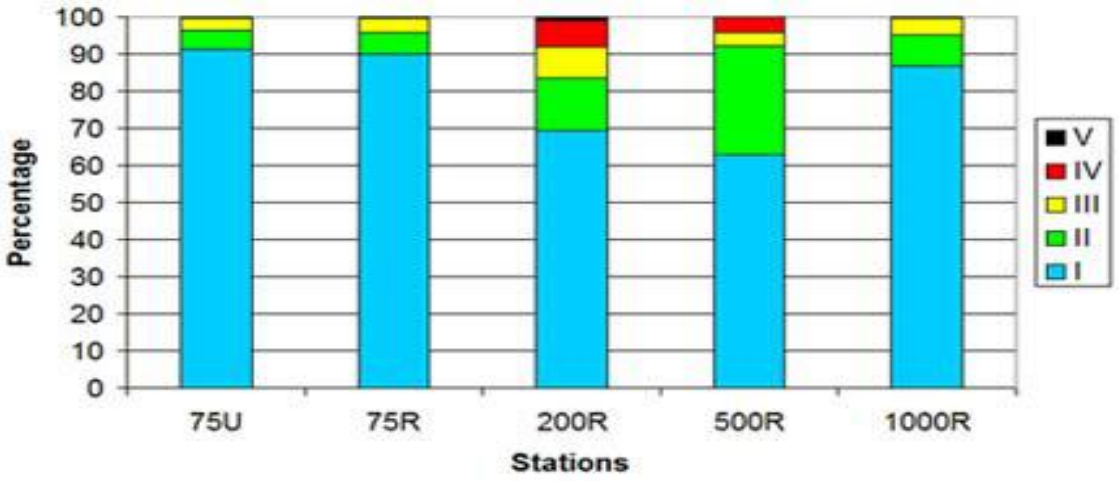
Step 1: Prepare the figures and tables

Remember that "a figure is worth a thousand words." Hence, illustrations, including figures and tables, are the most efficient way to present your results. Your data are the driving force of the paper, so your illustrations are critical!

How do you decide between presenting your data as tables or figures? Generally, tables give the actual experimental results, while figures are often used for comparisons of experimental results with those of previous works, or with calculated/theoretical values (Figure 1).

Should you use a table or chart?

	ECOLOGICAL GROUP				
Station	**I**	**II**	**III**	**IV**	**V**
75U	91.3	5.3	3.2	0.2	0.0
75R	89.8	6.1	3.6	0.5	0.0
200R	69.3	14.2	8.6	6.8	1.1
500R	63.0	29.5	3.4	4.2	0.0
1000R	86.7	8.5	4.5	0.2	0.0



Whatever your choice is, no illustrations should duplicate the information described elsewhere in the manuscript.

Another important factor: figure and table legends must be self-explanatory (Figure 2)

Figures must be self-explanatory

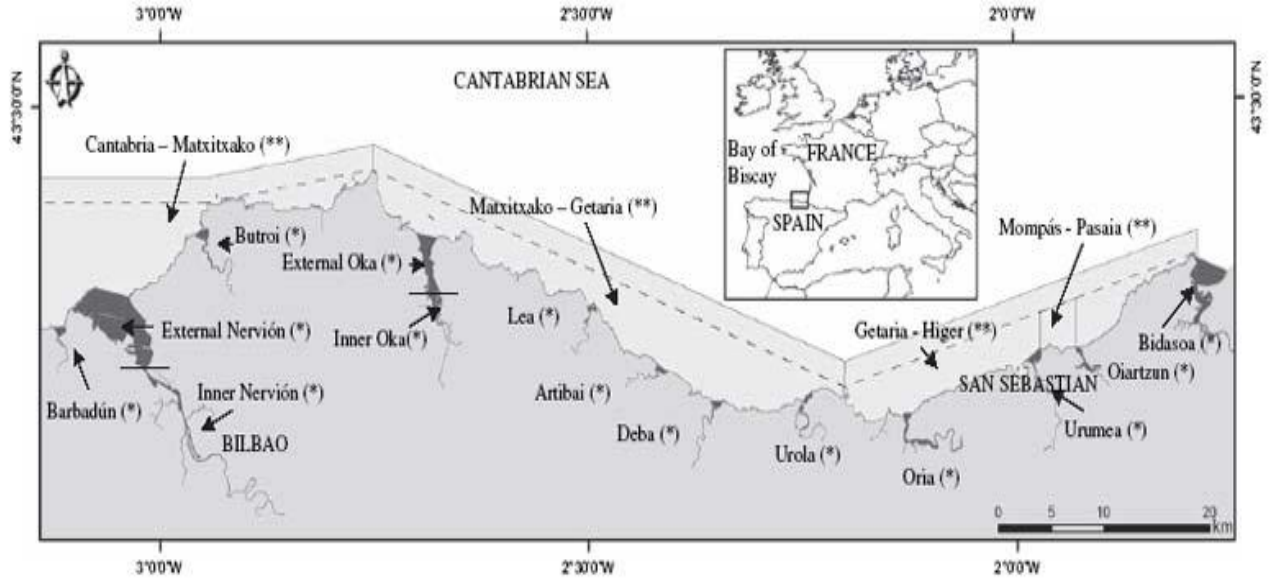


Fig. 1. Location of each of estuarine (*, black colour) and coastal (**, grey colour) water bodies, within the Basque Country. Note: dotted line shows the Basque coastal baseline. Inner and external parts of the Nervión and Oka estuaries are separated by a straight line.

When presenting your tables and figures, appearances count! To this end:

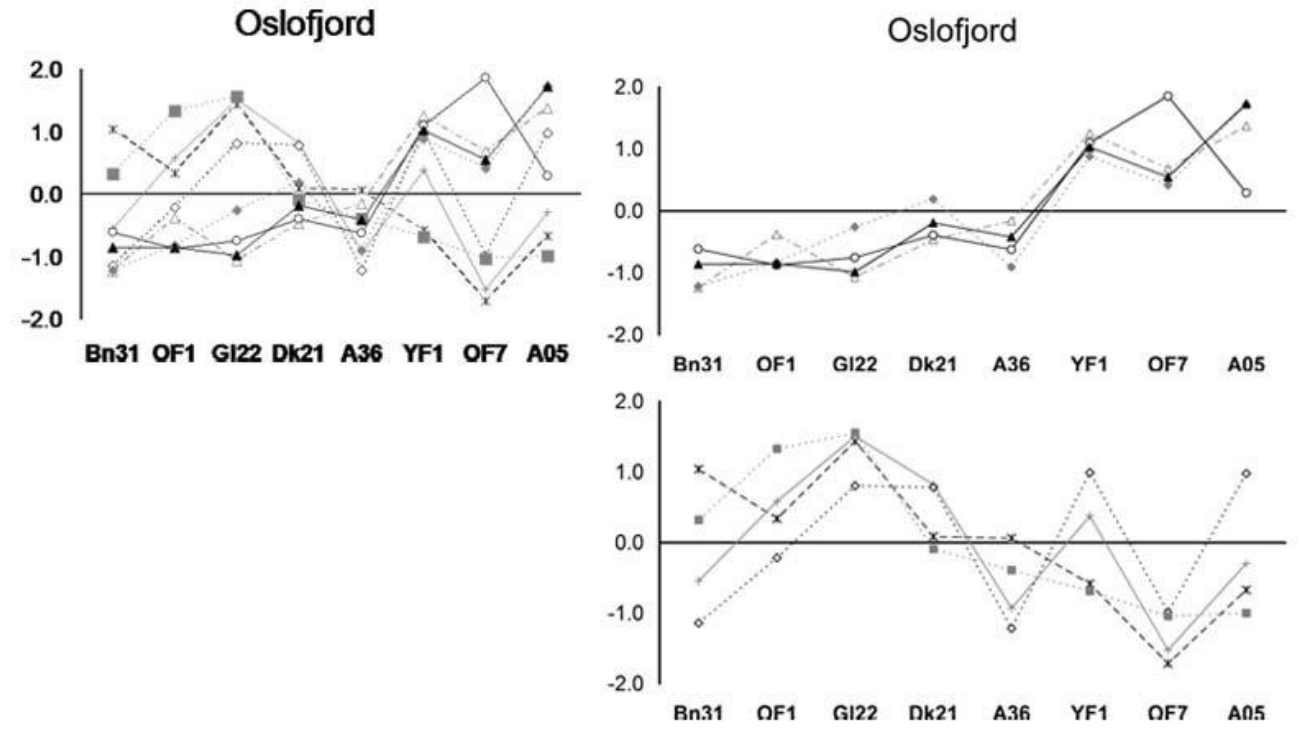
Avoid crowded plots (Figure 3), using only three or four data sets per figure; use well-selected scales.

Think about appropriate axis label size

Include clear symbols and data sets that are easy to distinguish.

Never include long boring tables (e.g., chemical compositions of emulsion systems or lists of species

Don't clutter your charts with too much data



Step 2: Write the Methods

- This section responds to the question of how the problem was studied. If your paper is proposing a new method, you need to include detailed information so a knowledgeable reader can reproduce the experiment.
- However, do not repeat the details of established methods; use References and Supporting Materials to indicate the previously published procedures. Broad summaries or key references are sufficient.
- **Title:** Short and informative
- **Abstract:** 1 paragraph (<250 words)
- **Introduction:** 1.5–2 pages
- **Methods:** 2–3 pages
- **Results:** 6–8 pages
- **Discussion:** 4–6 pages
- **Conclusion:** 1 paragraph
- **Figures:** 6–8 (one per page)
- **Tables:** 1–3 (one per page)
- **References:** 20–50 papers (2–4 pages)

- **For chemicals,** use the conventions of the International Union of Pure and Applied Chemistry and the official recommendations of the IUPAC–IUB Combined Commission on Biochemical Nomenclature.
- **For species,** use accepted taxonomical nomenclature (WoRMS: World Register of Marine Species, ERMS: European Register of Marine Species), and write them always in italics.
- **For units of measurement,** follow the International System of Units (SI).

IUPAC Periodic Table of the Elements

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
1 H hydrogen [1.0078, 1.0082]																	2 He helium 4.0026
3 Li lithium [6.938, 6.997]	4 Be beryllium 9.0122											5 B boron [10.805, 10.821]	6 C carbon [12.009, 12.012]	7 N nitrogen [14.006, 14.008]	8 O oxygen [15.999, 16.000]	9 F fluorine 18.998	10 Ne neon 20.180
11 Na sodium 22.990	12 Mg magnesium [24.304, 24.307]											13 Al aluminium 26.982	14 Si silicon [28.084, 28.086]	15 P phosphorus 30.974	16 S sulfur [32.059, 32.076]	17 Cl chlorine [35.446, 35.457]	18 Ar argon [39.792, 39.963]
19 K potassium 39.098	20 Ca calcium 40.078(4)	21 Sc scandium 44.956	22 Ti titanium 47.867	23 V vanadium 50.942	24 Cr chromium 51.996	25 Mn manganese 54.938	26 Fe iron 55.845(2)	27 Co cobalt 58.933	28 Ni nickel 58.693	29 Cu copper 63.546(3)	30 Zn zinc 65.38(2)	31 Ga gallium 69.723	32 Ge germanium 72.630(8)	33 As arsenic 74.922	34 Se selenium 78.971(8)	35 Br bromine [79.901, 79.907]	36 Kr krypton 83.798(2)
37 Rb rubidium 85.468	38 Sr strontium 87.62	39 Y yttrium 88.906	40 Zr zirconium 91.224(2)	41 Nb niobium 92.906	42 Mo molybdenum 95.95	43 Tc technetium	44 Ru ruthenium 101.07(2)	45 Rh rhodium 102.91	46 Pd palladium 106.42	47 Ag silver 107.87	48 Cd cadmium 112.41	49 In indium 114.82	50 Sn tin 118.71	51 Sb antimony 121.76	52 Te tellurium 127.60(3)	53 I iodine 126.90	54 Xe xenon 131.29
55 Cs caesium 132.91	56 Ba barium 137.33	57-71 lanthanoids	72 Hf hafnium 178.49(2)	73 Ta tantalum 180.95	74 W tungsten 183.84	75 Re rhenium 186.21	76 Os osmium 190.23(3)	77 Ir iridium 192.22	78 Pt platinum 195.08	79 Au gold 196.97	80 Hg mercury 200.59	81 Tl thallium [204.38, 204.39]	82 Pb lead 207.2	83 Bi bismuth 208.98	84 Po polonium	85 At astatine	86 Rn radon
87 Fr francium	88 Ra radium	89-103 actinoids	104 Rf rutherfordium	105 Db dubnium	106 Sg seaborgium	107 Bh bohrium	108 Hs hassium	109 Mt meitnerium	110 Ds darmstadtium	111 Rg roentgenium	112 Cn copernicium	113 Nh nihonium	114 Fl flerovium	115 Mc moscovium	116 Lv livermorium	117 Ts tennessine	118 Og oganesson

Key:

atomic number
Symbol
name
conventional atomic weight
standard atomic weight

57 La lanthanum 138.91	58 Ce cerium 140.12	59 Pr praseodymium 140.91	60 Nd neodymium 144.24	61 Pm promethium	62 Sm samarium 150.36(2)	63 Eu europium 151.96	64 Gd gadolinium 157.25(3)	65 Tb terbium 158.93	66 Dy dysprosium 162.50	67 Ho holmium 164.93	68 Er erbium 167.26	69 Tm thulium 168.93	70 Yb ytterbium 173.05	71 Lu lutetium 174.97
89 Ac actinium	90 Th thorium 232.04	91 Pa protactinium 231.04	92 U uranium 238.03	93 Np neptunium	94 Pu plutonium	95 Am americium	96 Cm curium	97 Bk berkelium	98 Cf californium	99 Es einsteinium	100 Fm fermium	101 Md mendelevium	102 No nobelium	103 Lr lawrencium

INTERNATIONAL UNION OF PURE AND APPLIED CHEMISTRY

For notes and updates to this table, see www.iupac.org. This version is dated 1 December 2018.

United Nations Educational, Scientific and Cultural Organization

2019 IYPT International Year of the Periodic Table of Chemical Elements

100 IUPAC

- Present proper control experiments and statistics used, again to make the experiment of investigation repeatable.
- List the methods in the same order they will appear in the Results section, in the logical order in which you did the research:
- Description of the site
- Description of the surveys or experiments done, giving information on dates, etc.
- Description of the laboratory methods, including separation or treatment of samples, analytical methods, following the order of waters, sediments and biomonitors. If you have worked with different biodiversity components start from the simplest (i.e. microbes) to the more complex (i.e. mammals)
- Description of the statistical methods used (including confidence levels, etc.)
- In this section, avoid adding comments, results, and discussion, which is a common error.

Step 3: Write up the Results

This section responds to the question "What have you found?" Hence, only representative results from your research should be presented. The results should be essential for discussion.

- However, remember that most journals offer the possibility of adding Supporting Materials, so use them freely for data of secondary importance. In this way, do not attempt to "hide" data in the hope of saving it for a later paper. You may lose evidence to reinforce your conclusion. If data are too abundant, you can use those supplementary materials.

- For the data, decide on a logical order that tells a clear story and makes it and easy to understand. Generally, this will be in the same order as presented in the methods section.
- An important issue is that you must not include references in this section; you are presenting *your* results, so you cannot refer to others here. If you refer to others, is because you are *discussing*your results, and this must be included in the Discussion section

Step 4: Write the Discussion

- Take into account the following tips:
- **1. Avoid statements that go beyond what the results can support.**
- **2. Avoid unspecific expressions** such as "higher temperature", "at a lower rate", "highly significant". Quantitative descriptions are always preferred (35°C, 0.5%, $p<0.001$, respectively).
- **3. Avoid sudden introduction of new terms or ideas;** you must present everything in the introduction, to be confronted with your results here.
- **4. Speculations on possible interpretations are allowed, but these should be rooted in fact, rather than imagination.**

Step 5: Write a clear Conclusion

- This section shows how the work advances the field from the present state of knowledge. In some journals, it's a separate section; in others, it's the last paragraph of the Discussion section. Whatever the case, without a clear conclusion section, reviewers and readers will find it difficult to judge your work and whether it merits publication in the journal.
- A common error in this section is repeating the abstract, or just listing experimental results. Trivial statements of your results are unacceptable in this section.
- You should provide a clear scientific justification for your work in this section, and indicate uses and extensions if appropriate. Moreover, you can suggest future experiments and point out those that are underway.
- You can propose present global and specific conclusions, in relation to the objectives included in the introduction.
-

Step 6: Write a compelling Introduction

- A good introduction should answer the following questions:
- What is the problem to be solved?
- Are there any existing solutions?
- Which is the best?
- What is its main limitation?
- What do you hope to achieve?

Step 7: Write the Abstract

- The abstract tells prospective readers what you did and what the important findings in your research were. Together with the title, it's the advertisement of your article. Make it interesting and easily understood without reading the whole article. Avoid using jargon, uncommon abbreviations and references.
- You must be accurate, using the words that convey the precise meaning of your research. The abstract provides a short description of the perspective and purpose of your paper. It gives key results but minimizes experimental details. It is very important to remind that the abstract offers a short description of the interpretation/conclusion in the last sentence.
- A clear abstract will strongly influence whether or not your work is further considered.

Step 8: Compose a concise and descriptive title

- The title must explain what the paper is broadly about. It is your first (and probably only) opportunity to attract the reader's attention. In this way, remember that the first readers are the Editor and the referees. Also, readers are the potential authors who will cite your article, so the first impression is powerful!

Step 9: Select keywords for indexing

- Keywords are used for indexing your paper. They are the label of your manuscript. It is true that now they are less used by journals because you can search the whole text. However, when looking for keywords, avoid words with a broad meaning and words already included in the title.
- Some journals require that the keywords are not those from the journal name, because it is implicit that the topic is that. For example, the journal *Soil Biology & Biochemistry* requires that the word "soil" not be selected as a keyword.

Step 10: Write the Acknowledgements

- Here, you can thank people who have contributed to the manuscript but not to the extent where that would justify authorship. For example, here you can include technical help and assistance with writing and proofreading. Probably, the most important thing is to thank your funding agency or the agency giving you a grant or fellowship.

Step 11: Write up the References

- Typically, there are more mistakes in the references than in any other part of the manuscript. It is one of the most annoying problems, and causes great headaches among editors. Now, it is easier since to avoid these problem, because there are many available tools.
- In the text, you must cite all the scientific publications on which your work is based. But do not over-inflate the manuscript with too many references – it doesn't make a better manuscript! Avoid excessive self-citations and excessive citations of publications from the same region.