

CITIZEN SCIENCE

HOW TO DESIGN QUALITY PROJECTS

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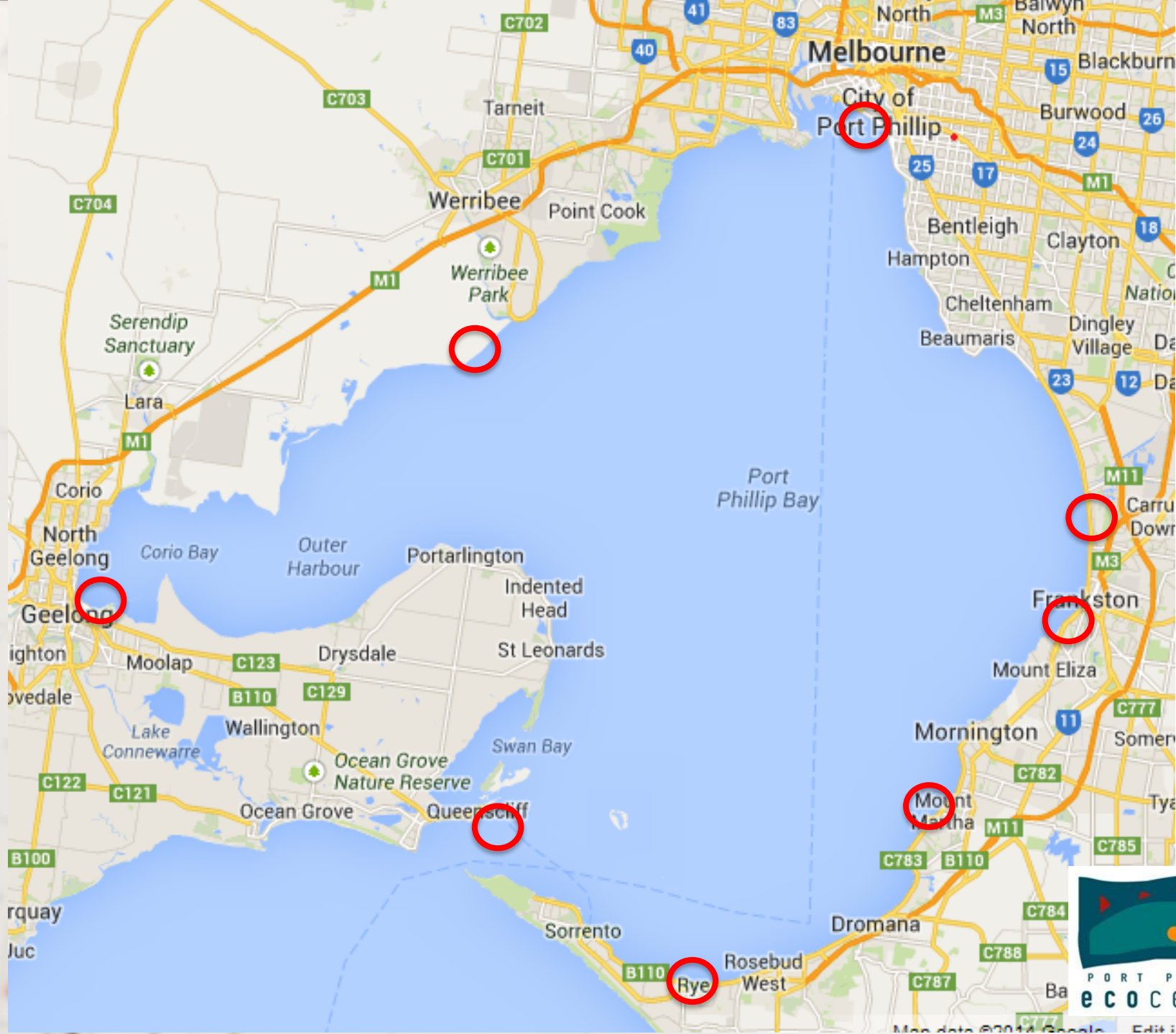


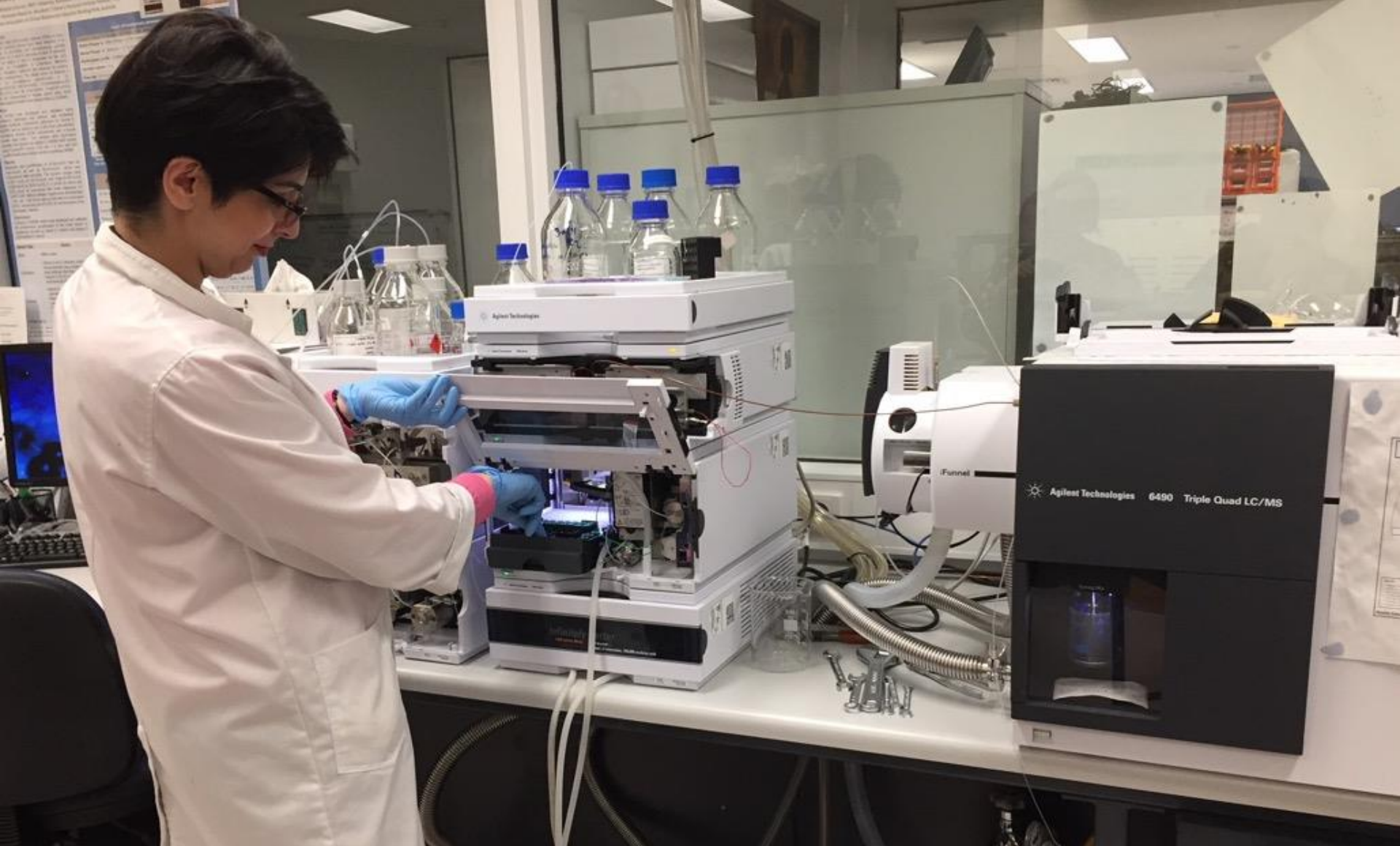


CLEAN BAY BLUEPRINT

Funded by the Port Phillip Bay Fund







SUNSCREEN & BAY MARINE LIFE

CHALLENGES

Keeping the 'science' in citizen science

- some projects do not use quality science → evidence?
- what questions are we answering?

Keeping the 'citizen' in citizen science

- some projects underestimate resources necessary for volunteer engagement
- motivations differ among participants

Communication & expectations

- how long is a 'sampling day'?

**Published citizen science rubrics heavy on science
not so much about citizens.**



Citizen Science Evaluation Rubric

Subelement Descriptions

Element	Subelement	Key Questions to Ask About the Program
Scientific Contribution	Project Objective	<p><i>How is the scientific objective defined?</i></p> <ul style="list-style-type: none"> Is the objective well defined using the SMART method? Does it answer the research question? Does it address limitations involved? Do the methods produce data which fulfill this objective?
	Project Quality	<p><i>How is the quality controlled?</i></p> <ul style="list-style-type: none"> Are the methods standardised? Is the training standardised? Are methods simple and clear? Is the training simple and clear? Does the training emphasise the need for scientific rigor? Is there a preliminary quality control in place e.g. an acceptable range of values?
	Data Analysis	<p><i>How is the data analysed?</i></p> <ul style="list-style-type: none"> Is data analysed with reference to a baseline or outside benchmark? Is it analysed in a standard way across the life of the project? Is it analysed by experts? Is data quality analysed? Is data quality accounted for in analysis?
	Project Robustness	<p><i>How is the project sustained?</i></p> <ul style="list-style-type: none"> Are findings disseminated to the public? Are they disseminated to the scientific community? Are they disseminated transparently? Is feedback from the public and scientific community considered and incorporated as appropriate? Are individual managerial project roles simple? Are personnel cross-trained? Are there resources available to sustain the project?
Participant Recruitment and Retention	Participant Sourcing	<p><i>Where do the participants come from?</i></p> <ul style="list-style-type: none"> Do they come from a number of different sources? Are these sources diverse e.g. (organisations, schools, unaffiliated, etc.)? Do these sources provide opportunities for networking?

Citizen Science Evaluation Rubric

Subelement Descriptions

Element	Subelement	Key Questions to Ask About the Program
Participant Recruitment and Retention	Participant Motivation	<p><i>How does the project motivate participants?</i></p> <ul style="list-style-type: none"> Is there a community among participants? Do the participants share values, goals, and a vision for the project? Do participants recruit other participants? Can participants influence the project (e.g. help shape the project goals)? Are they aware of and committed to answering the research question?
	Time/ Effort Investment	<p><i>How much investment does participation require of the participants?</i></p> <ul style="list-style-type: none"> How much time commitment does it require? How much effort does it require? How long does training take? Is there any follow up? Are the methods simple? Are there any barriers to entry e.g. travel, background knowledge etc?
	Returns	<p><i>What do participants get out of participating?</i></p> <ul style="list-style-type: none"> Are there immediate results? Are they tangible or easily visible (not abstract)? Is long term data accessible? Is there any tangible reward e.g. T-shirts, food, etc.? Is there a lot of social interaction? Is there reciprocity between your organisation and participants' organisations?
Communication	Content	<p><i>What is actually said to participants and the wider community?</i></p> <ul style="list-style-type: none"> How well-known is the topic? Does the project show a path to a positive outcome? If applicable, are any news events regarding the topic leveraged to promote the project?
	Project Story	<p><i>How is the content delivered?</i></p> <ul style="list-style-type: none"> Is the vision of the project conveyed? Does the information provided tell a story? Is the content clear? Does this information play to the emotions and values of participants and the wider community?
	Communications Delivery	<p><i>Where and when is the information delivered?</i></p> <ul style="list-style-type: none"> Is there regular communication with participants and the wider community? What media is it delivered through? Is the message tailored to the demographics using each medium?

ACTIVITY 1

<https://ecocentre.com/tawnyfrogmouth>

Use Tawny Frogmouth project descriptions on your table

- 1) 3 small groups per table**
- 2) Each small group uses 1 Element for project evaluation
(Elements: Scientific Contribution, Participant Recruitment, Communications)**
- 3) Answer the questions of the sub-elements for the project**

Citizen Science Evaluation Rubric

Detailed Rubric

Element	Subelement	Level 0	Level 1	Level 2	Level 3
Scientific Contribution	Project Objective	The scientific objective of this project is undefined and does not align with research questions and does not account for limitations. Methods don't produce data that fulfils this objective.	The scientific objective of this project is somewhat defined and partly aligns with the research question and some limitations are accounted for. Methods produce some data that fulfil the objective.	The scientific objective of the project is defined based on the research questions and most of the limitations involved. Methods produce data which mostly fulfil this objective.	The scientific objective of the project is well defined based on the research questions and any and all limitations involved. Methods produce data which completely fulfils this objective.
	Project Quality	Methods and training are complex, difficult to understand, and not regulated for standardisation. No initial quality control is conducted. Training materials do not promote a deeper understanding of the project and don't emphasise scientific rigour.	Methods and training can at times be complex, difficult to understand, and not completely regulated for standardisation. Very little initial quality control is conducted. Training materials sometimes promote a deeper understanding of the project and have minimal emphasis on scientific rigour.	Methods, training, and accompanying materials are often simple, clear, and standardised. Some preliminary quality control protocol is in place. Training materials frequently promote a deeper understanding of the project, methods and have an emphasis on the need for scientific rigour.	Methods, training, and accompanying materials are simple, clear, and standardised. A preliminary quality control protocol is in place. Training materials always promote deeper understanding of the project, methods, and have a large emphasis on the need for scientific rigour.
	Data Analysis	There is no benchmark to reference data against, and data is not analysed in a standard way. Data quality is not accounted for.	Data is sometimes analysed in a standard way. Data quality is sometimes accounted for. The baseline or outside benchmark is not always accurate.	Data is most often analysed in a standard way. Data quality is usually accounted for. The baseline or outside benchmark is mostly accurate.	Data is analysed with reference to a preliminary baseline or outside benchmark in a standardised way by experts. Data quality is analysed and accounted for.
	Project Robustness	Public has no knowledge of the findings and there is no opportunity to provide feedback. Roles are complex and crucial personnel are not replaceable. Project has no access to ongoing resources.	Public is aware of some of the findings and are provided an opportunity to give feedback. Some roles are complex and there is minimal cross training. Project has limited access to ongoing resources.	Public has knowledge of most of the findings and feedback may be taken into consideration when making improvements. Few roles are complex and there is some cross training of crucial individuals. Project has sufficient access to ongoing resources.	Findings are transparently disseminated to the public and the scientific community and feedback is incorporated. Individual roles are simple and crucial personnel are cross-trained to ensure replaceability. The project has access to a surplus of ongoing resources.
Participant Recruitment / Retention	Participant Motivation	This project does not create a sense of community among participants and does not facilitate the sharing of values, goals, and vision. Participants can't influence the project and are not engaged in answering the research question.			
	Time/Effort Investment	There is a large time commitment and effort required. Training is complex and lacks follow up support. There is a high barrier to entry.			
Participant Recruitment / Retention	Returns	The results for the project are not immediately tangible and the data is not accessible to show progress. There is no tangible reward or cross-organisational reciprocity. Very limited social interaction.			
	Participant Sourcing	Participants all come from a similar demographic and random inconsistent sources. The participants do not come from organisations/networks.	Participants come from similar demographics and a few inconsistent sources. Some participants come from organisations/networks.	Participants come from various demographics and a few consistent sources. Most participants come from organisations/networks.	Participants come from a diverse pool of consistent sources and come from organisations/networks.

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Element	Subelement	Level 0
Participant Recruitment / Retention	Participant Motivation	This project does not create a sense of community among participants and does not facilitate the sharing of values, goals, and vision. Participants can't influence the project and are not engaged in answering the research question.
	Time/Effort Investment	There is a large time commitment and effort required. Training is complex and lacks follow up support. There is a high barrier to entry.
	Returns	The results for the project are not immediately tangible and the data is not accessible to show progress. There is no tangible reward or cross-organisational reciprocity. Very limited social interaction.
Communication	Content	The project covers an obscure topic and shows no path to positive outcomes. The project misses vital opportunities to leverage current or past events.
	Project Story	Participants and external audience are not informed of the project vision, there is no accompanying story to be inspired from, and the project does not align with the audience's values.
	Comms Delivery	Information is delivered through very limited outlets. Communication to participants and external audiences is very sparse and irregular. Information is not tailored to different demographics or only targets a specific audience.



Communication	Content	The project covers a relatively obscure topic. The goals of the project are vaguely defined with some path to a positive outcome.	The project covers a relatively well-known topic and is able to show a somewhat clear path to a positive outcome. Occasionally leverages events to further interest in project.	The project relates clearly to a popular subject and its goals show a clear path to a positive outcome. The project is able to leverage events local and abroad, as appropriate, in a meaningful and effective way.
	Project Story	Some of the participants and audience are informed about some of the project vision, there is a small accompanying story to be inspired from, and the project aligns with some of the audience's values.	Most of the participants and audience are informed about most of the project vision, there is an accompanying story to be inspired from, and the project aligns with most of the audience's values.	The purpose and long-term vision of the project is clearly laid out to the whole audience with a story which inspires interest and emotional response by aligning with the audience's values.
	Comms Delivery	Information is delivered through limited outlets. Communication to participants and external audiences is limited and irregular. Information is sometimes tailored to different demographics.	Information is delivered somewhat regularly through several vehicles and is often tailored to the demographic. There is regular communication with participants.	Information is delivered periodically through diverse vehicles including social media, printed news, email, conferences/speeches, and newsletters, and is tailored to the demographic using each vehicle. There is regular communication with participants.

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ACTIVITY 2

- 1) Use the rubric and your answers to level-score each sub-element (score 0, 1, 2, or 3)**
- 2) Discuss with your table how the project can improve**

ACTIVITY 3

Participant project!

GET A RUBRIC COPY

Fill out the form with your email for an electronic copy

Or contact Fam Charko

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