

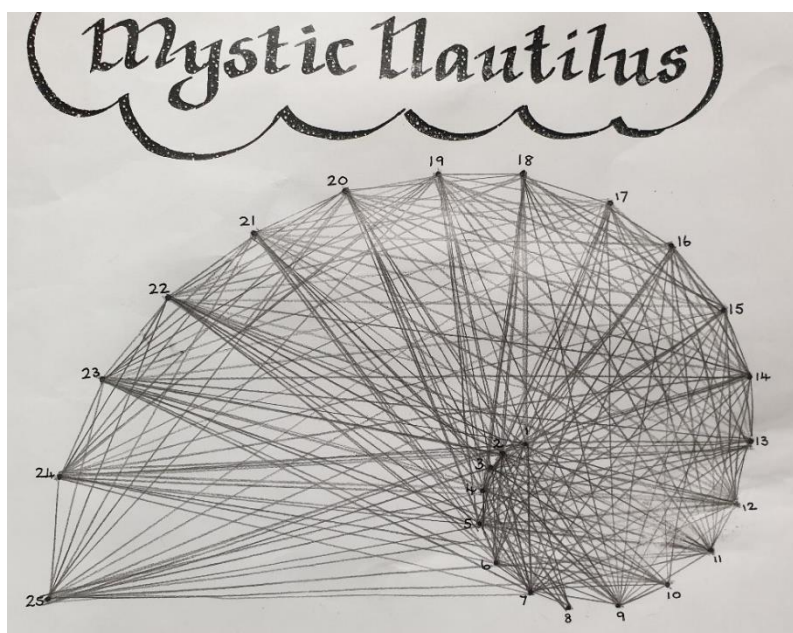


Precious Plastic Plymouth



Our vision is of a world where creative energy drives environmental change

Our mission is to provide a tool for local recycling and creative engagement to empower the community to live sustainably.



Joining the dots!

Jane has often mentioned joining the dots and I was going to draw a dot to dot plastic recycler or something here until my daughter brought this home from school yesterday. It is just like how a food chain is not a chain but a web. It's a new take on a classic idea. If each of us is a dot, together we make an interesting 3D creation. I love that it is a mystic sea creature too!

If you haven't explored the Precious Plastic website yet there is a tonne of information there and a global network of dots to join <https://preciousplastic.com/>

After a fabulous first Zoom meeting we are all reeling at the amount of energy there is for this idea. What a fantastic group of diverse individuals and groups we have interested in collaborating. Thank-you all for your generosity of spirit and real commitment of time and resources to this endeavour. So now we need a plan! This newsletter will outline what talked about in the first meeting and the different approaches that we could take. This will include the machinery, the source plastic, the products, the business strategy and the outreach communication. We will try to describe various options and identify our goals. We hope to fire your imagination so that between us we can come up with a workable and inspiring plan. We have 2 next Zoom meetings on 9th July, a day time and evening one, I hope you are all excited to join again. This time we hope to spend some time in smaller groups focussed on these different aspects of the project:



Play, Art and Creativity

Science, Education and Environment - plastics recycling

Commercial and Enterprise Opportunities

"The Machine" - design, engineering and building

Please let me know by email if you are interested in joining either the day or evening Zoom meeting on 9th July and which of these break-out groups you would like to join: kate.crawfurd@gmail.com

Both newsletters are available here www.katecrawfurd.co.uk/ppp so please share this and invite anyone else to the party who you think would like to be involved. If you prefer to be less involved but still up-dated please let me know.



Machinery

The Precious Plastic machines, with open-source blueprints, are available here:

<https://preciousplastic.com/solutions/machines/overview.html> but we are seeing these as a starting point.

Precious Plastic Tavistock have already made and worked with the shredder, extruder and injection moulder machines and have identified improvements that can be made.

So at the moment we envision machinery anywhere from a quirky pedal powered mobile unit to a commercial production scale project. This should be a self-sustaining project and so should be a viable commercial business. However, we are all in this for the educational/environmental/creative excitement of it and so we need to keep that alive. We would like a model which children can interact with too. Possibly we can do both separately and have a demo model for going into the community which is funded, partly, by a more commercial venture. Or we can make a safe, interactive commercial machine, or some parts of the machinery. Perhaps children could prepare sheets for pressing, using different coloured plastic chips to create designs. These could be made into tabletops or benches for schools. Pedal powered shredders have been made and a suggestion was made that we could reduce our carbon footprint even more with a solar lens to melt the plastic. Maybe you have other ideas to add.

Some notes from our meeting: Learning from Ursula's experiences at PP Tavistock and the wider PP community, the extruder on the PP open source files is not useful. However, as Rob mentioned, you can buy a desktop extruder for around £50. Injection moulding works well but is time consuming, moulds are a bit fiddly and expensive to create but are a good design project. Sheet presses are the most popular new tool. The sheets can then be used with laser cutters.



Input plastic

Plastics, their properties and suitability for Precious plastics recycling are described here:

<https://community.preciousplastic.com/academy/plastic/basics>

Basically, HDPE, LDPE, Polypropylene and Polystyrene are fairly safe to recycle. PET and PVC are dangerous and mixed plastics have the issue that melting points will differ and so some will burn before other types have melted. Burning plastic is bad!



3D printer waste

PLA, shred, extrude, reuse in 3D printers. Small home recyclers beginning to become available.



Fishing nets

Marine nylon/ replaced each season, may be quite unused. Fishy filaments recycles this into engineering grade filament for 3D printers <https://fishyfilaments.com/>

Might tangle shredders and need some other sort of chopping device. Great marine themed project <https://www.weforum.org/agenda/2020/05/these-entrepreneurs-creating-surfboards-and-swimwear-from-discarded-fishing-nets/>



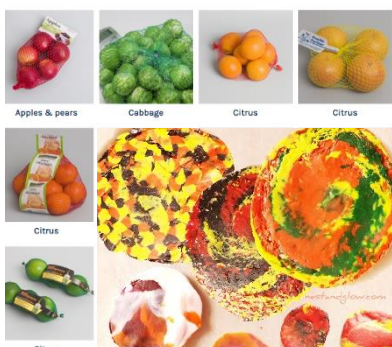
Princess Yachts

I am not sure what waste plastic they have as yet, does anyone out there know? I feel that this could be a valuable idea to follow up. The yachting community have an interest in environmental, particularly marine endeavours and I feel there may be useful products we could make eg. Fenders.



Home recycling

It would be really engaging for kids to bring their own yoghurt pots, shred them and reform them into something else. On a commercial scale this is too difficult. Sorting, cleaning, working out which plastic is which is labour intensive. Would be great for a demo machine.



Fruit and veg nets

Polyethylene, polypropylene, nylon. These are good for PP recycling but tend to tangle industrial equipment and so are not usually recycled. They can just be ironed to re-melt them and perhaps do not need shredding. Maybe we can design some use for these.

Output

“The Thing”

I am not sure if we need a “thing” exactly, maybe we can create lots of interesting things and maybe actually education and outreach is our thing. If we do need a particular “thing” then it needs to be:

- Needed
- Possible
- Exciting
- Commercial?

However, I think that if, for example, we made sheets of plastic then we could cut all sorts of things out and assemble them into whatever we wanted. Here are some ideas from the wider Precious Plastic community, more here: <https://preciousplastic.com/solutions/products.html> and from me:



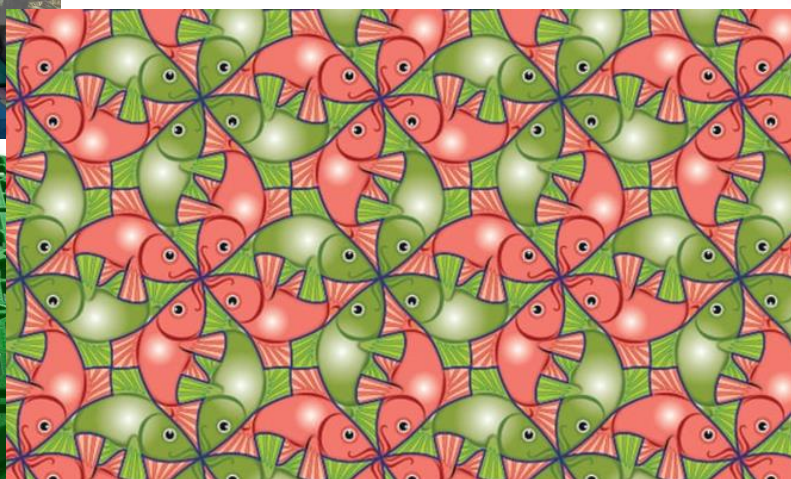
Some of my random ideas



As Plymouth "Ocean city" could we turn old fishing nets into fishing buoys, fenders or fish shaped tiles?

We could ask the fishermen what would be useful to them. The yachting community might be interested in fenders.

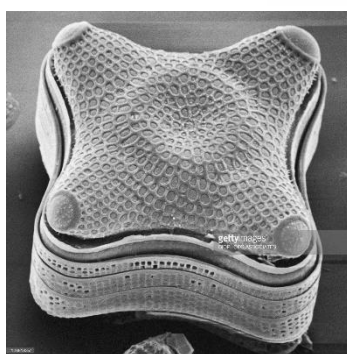
We could even make boats from recycled plastic



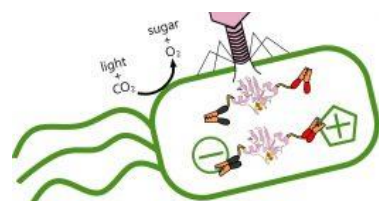
Plastic Plankton lampshades for the scientists



Diatom pillboxes



Plastic model virus and host educational models



Kids tables where they can lay out the plastic design for melting



What are other people doing?



Kedel

recycled wood from polystyrene, CD cases, coathangers etc. destined for landfill

<https://www.kedel.co.uk/recycled-plastic-wood/multicoloured-fence-pales-recycled-plastic-wood.html>



Fishy filaments

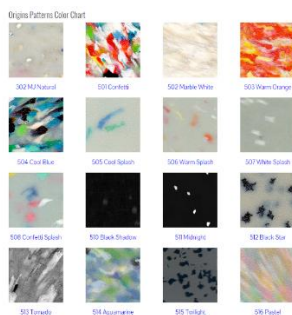
Fishy filaments recycles fishing nets made of marine nylon into engineering grade filament for 3D printers <https://fishyfilaments.com/>



Smile plastics

<https://smile-plastics.com/>

Makes sheets of recycled plastic for many uses



YH

http://yemhart.com/wordpress/pioneers-in-eco-materials/colorful_plastic_sheet/

Plastic sheets for various purposes, Panel Size: 1219 x 2438 mm

1 x 1/8" £750

1 x 1" £1500



PP Monash University

<https://www.preciousplasticmonash.com/>

Loads of cool products, guitars, skateboards, jackets. Plus education programme.

More ideas in the Precious Plastics bazaar: <https://preciousplastic.com/solutions/bazar.html>

Business strategy

There is clearly a viable business in this project. Perhaps this is recycling 3D printer or other waste plastic and selling filament back to the users. Perhaps we create bespoke plastic sheets or smaller items to sell.

We may be able to cover the initial machinery costs with funding and/or from Tavistock PP. Machines may be able to live at the Scrapstore but we need to consider premises insurance vs public liability insurance. Insurance companies may have requirements for fireproofing and extraction if the process is performed indoors. Alternatively, a mobile unit only needs public liability insurance. Naturesafe in Totnes deal with this type of insurance. We may also be able to use machines already in place at other venues.

The process is labour intensive. Our initial plan was to run workshops/team building events but this is difficult at present. We might be able to involve students in many aspects of the project, from designing and making the machines to creating artworks. We should try to optimise the shredder efficiency. If we are injection moulding then maybe we could design moulds which produce several products at once. Maybe a sheet-press is less labour intensive.

A mobile recycling plant designed to go into schools, events and to pop-up in the city centre could generate an income through funding or being hired for events. It could also be funded by a more commercial aspect of the project.

The wider PP community share advice here: <https://community.preciousplastic.com/academy/business>

Communication

This is especially important because we can't interact face to face with workshops as planned. We would like to engage schools, community groups, businesses, scientists and people in general. We can still collect, shred, design and create plastic products with only a few people involved physically. We can also gather people, engage them and collect their ideas so that we can start creating as soon as we have machinery running. I envisage a short video made up of clips of us showing the plastic types, doing some shredding, explaining the machines and what they are capable of. A little like Ursula and I did at the Zoom meeting but with the real machinery. This needs to be clear and engaging but could also be playful.



Before COVID-19 I started going into schools doing art/science workshops and was going to make up a persona: Dr Dot, in a paint splattered labcoat. I told Jane and Susan about this and it really tickled them and brought this project to life for Jane especially. We thought Dr Dot could do silly videos showing what we are doing and, Charlotte I think, suggested we put them on Tick Tock. My kids told me not to do anything embarrassing like that!

So we thought we might make a cartoon instead. Because we were teenagers in the 80's we joked about making an Aha style animation/comic strip starting with a real Dr Dot but then becoming a cartoon! We are chatting with Kitty and the Zine group about the cartoon idea for now. Any other communication ideas would be very welcome.

We look forward to seeing you again on 9th July, please email me kate.crawfurd@gmail.com Stay safe!