Zool 567 Topic Dissemination
Charly Archibald and Taylor Ford-Sahibzada

Blind Dates with invertebrates

Musical intro

Charly: Hello everyone! Welcome back to another episode of blind dates with invertebrates, my name is Charly...

Taylor: ...and I am Taylor. On this podcast we each pick an invertebrate and set them up on a blind date to test their compatibility through looking at a couple of their unique behaviors.

Charly: Last week's date ended in betrayal as our bachelorette jellyfish kind of, sort of, ate her date… guess he was a little too shrimpy for her.

Taylor: Moving on, let's introduce our two invertebrates in this episode

Music

Taylor: First up we have Herbert the hermit crab! This popular little crustacean is known for his mobile home and his numerous anemone friends!

Charly: Next up we have Camilla the cuttlefish! Camilla the cuttlefish is a master of disguise as she can change both her color and texture faster than you can say cephalopod.

Taylor: So, will these two end up happy as clams…

Charly: ...or will it be a wreck of a relationSHIP?

Taylor: Let's dive deeper into the personalities of each of these invertebrates by asking a few questions:

Q1. Introverted or extroverted

Musical intro

Charly:
So our first question is are our animals more introverted or extroverted. So Taylor, is Herbert more of an extrovert or introvert?

Taylor: Herbert is definitely more of an extrovert; he has numerous anemone friends that like to hitch a ride on his shell as he runs around the ocean floor.

Charly: Okay, so does he just have anemone friends or is he friends with other crabs?

Taylor: He's alright with his own species of hermit crab but he has a bit of a rivalry with the other species of hermit crab and he'll actually steal their anemone friends.

What about Camilla, is she more of an extrovert or an introvert?

Charly: Camilla is definitely more introverted. She rarely shows her true self, she'd rather prefer to just camouflage, so she'll utilize her camouflaging ability a lot when she doesn't feel safe. So, she can camouflage to either match her background or she can do this thing called dynamic masquerade in which she actually chooses an object to look like that would be found in that background.

Taylor: And how does dynamic masquerade work?

Charly: So, it's actually a two step process, so cuttlefish will first visually assess their environment and then once they decide "okay i want to look like this object" they'll visually access the texture of that object and replicate it on their own skin.

Taylor: Wait, wait, wait, so they can change their texture as well as their colour?

Charly: Yeah, so they actually have these things… These components of their skin, they're called papillae, and they're what give the cuttlefish their texture. So they're these little just kind of like bumps that they can form that are controlled by muscles and there's multiple muscles that either extend them or retract them into the skin. So if they are extended then the cuttlefish is very bumpy and it looks like it could be seaweed or, or whatever. And then when they are retracted the skin is very smooth. And these papillae are also supported by hydrostatic function which means that there's fluid that maintains the shape of the papillae. So, in this case it's interstitial fluid in the tissue and that adds to the cuttlefish being able to hold that shape for longer.

Taylor: Cool! So it seems like our two animals are at opposite ends of the extroverted/introverted spectrum.

Charly: A little bit…

Taylor: A little bit…

Charly: Maybe we can bridge that gap with the next couple questions.

Taylor: Maybe! So let's move on.

Q2. Love Language

Musical intro

Taylor: Let's move onto question two. Is Camilla more of a touchy-feely animal or is she more reserved?

Charly: Camilla is definitely more reserved. She gets all of her reception visually. So she needs no tactile stimulation in order to understand her surroundings, I guess, which means that she probably doesn't want to be that touchy-feely. But like for example when she is camouflaging she requires no tactile stimulation to replicate the textures that she sees.

Taylor: So she uses only visual stimulation?

Charly: Yes, yep, completely. And she's definitely more, I guess you could propose it as vain. She is a perfectionist so she likes to match her environment perfectly. She is simple where she only has three patterns that she'll choose to match but yeah she likes to focus on herself to make sure that she fits in perfectly with the environment.

Taylor: And what are her three patterns?

Charly: Either a uniform, a mottled, or a disruptive colour pattern. So, uniform patterns usually happen in environments that are very homogenous, low contrast, such as sand or really small rocks that are all the same colour. The mottled pattern occurs when there is moderate contrast and there's some rocks in different shapes and different sizes but still pretty even. And disruptive is when the environment is completely, just bizarre I guess you could say. There's lots of contrast and lots of different shapes and sizes of rocks or whatever she is trying to match and yeah.

Taylor: Wow, that's super cool.

Charly: Yeah! So Herbert? Touchy feely? More reserved?

Taylor: Definitely more of a touchy-feely animal, in fact some of his past dates have said that he is a little-but clingy. So hermit crabs use only tactile stimulation to convince anemones to detach from whatever substrate they are on. So, that could be a rock or the floor of the ocean. So what they do is that a hermit crab comes up and finds an anemone and then they use their claws and their legs to tap all around the base of the anemone which causes the anemone to release and then the hermit crab will just stick em' onto the shell and then its up to the anemone to attach.

Charly: Interesting. So how did scientists discover that they did this?

Taylor: So what they did was they actually went into a laboratory with some anemones and hermit crabs and watched how the hermit crab tapped the sea anemone and then they took a probe and did it the exact same way which is how they figured out that hermit crabs use only tactile stimulation to convince the anemones to detach.

Charly: Alright well that's question two, let's move onto question three!

Q3. Honesty and trust

Musical intro

Taylor: Question three, how honest is your invertebrate? Is Camilla more honest or maybe does she fib a little?

Charly: Like all cuttlefish, they really give off a lot of dishonest signalling just because they are animals that are constantly vulnerable because they have no shell or anything to protect them. So, they use their camouflage and give off dishonest signals so that they're always safe. So, all cuttlefish really need at least moderate amounts of light to be able to camouflage effectively because with too little light, they're unable to sense their environment and match their texture. In that case they'll just resort to the most inconspicuous pattern they can think of which is the uniform, smooth textured pattern basically.

Taylor: Very interesting!

Charly: What about Herbert? Is he an honest guy?

Taylor: He is generally pretty honest, him and his anemone friends have a very trustworthy honest relationship that works both ways. Hermit crabs can benefit from the relationship from getting protection as sea anemones actually sting their predators (which are usually octopus), and it actually works the other way as well as hermit crabs will protect sea anemones by either running away from the anemones predators or they'll actually attack them. So yeah, both of them have protection, and then anemones also benefit by getting a ride around the seafloor and this will give them more opportunities to catch food. Hermit crabs will actually place anemones on different parts of their shells for either maximum protection but mostly for balance because, they have a shell, and so they need to be able to run away very fast if a predator is coming or hide, and if you have a wobbly shell, that won't work as well.

Charly: Don't want to end up just tipped over.

Taylor: Exactly, it would not be great for predator protection which is the point of the relationship.

Charly: Neat.

Taylor: Yeah.

Charly: Yeah, so this relationship, it's not looking good. Do you think there is anything that can save it?

Taylor: Well, they both have the same predator, octopus.

Charly: That's true.

Taylor: Maybe they can bond over their mutual hatred of them.

Charly: Maybe… Well, that's with that, I say we throw this relationship away. *Place board behind couch* Anyways, join us next time for our next blind date with invertebrates. Next week we have…

Taylor: We have sea cucumbers paired up with mussels.

Charly: Oh, interesting combo. Well, will it work, or will this relationship be shucked out to sea?

Taylor: That joke made me pull a mussel!

Charly: I can't, it's too much.

laughter

Charly: Anyways, we would like to thank all of our references for all of the seaworthy information that they provided for us. If you would like to see a full list of them, please refer to our transcript.

Taylor: And thank you Ben for the musical contribution and we'll see you next time on dates with invertebrates!

Charly: Bye!

End

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