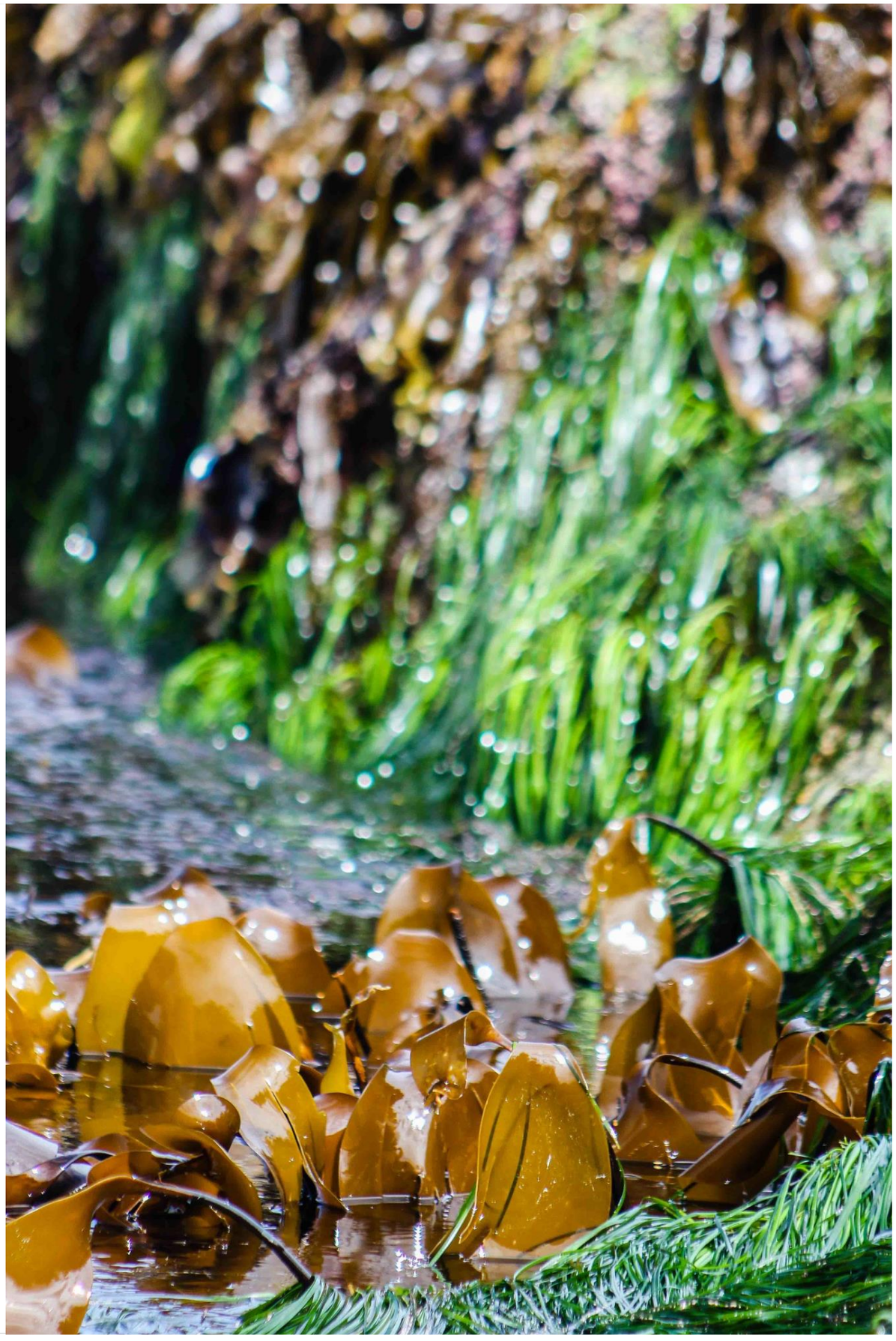
Got Algae? activity

Phycology

- From Greek *phykos* (seaweed) or *phyc* (algae)

- Encompasses study of biology, ecology, evolution, biochemistry, applications, etc. of algae.

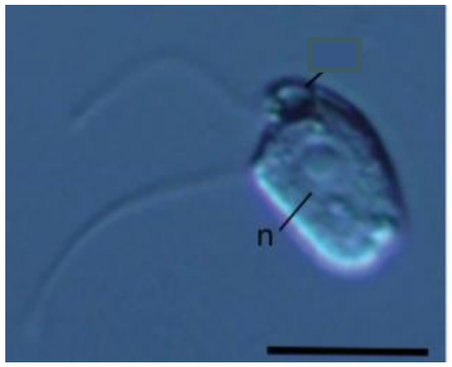


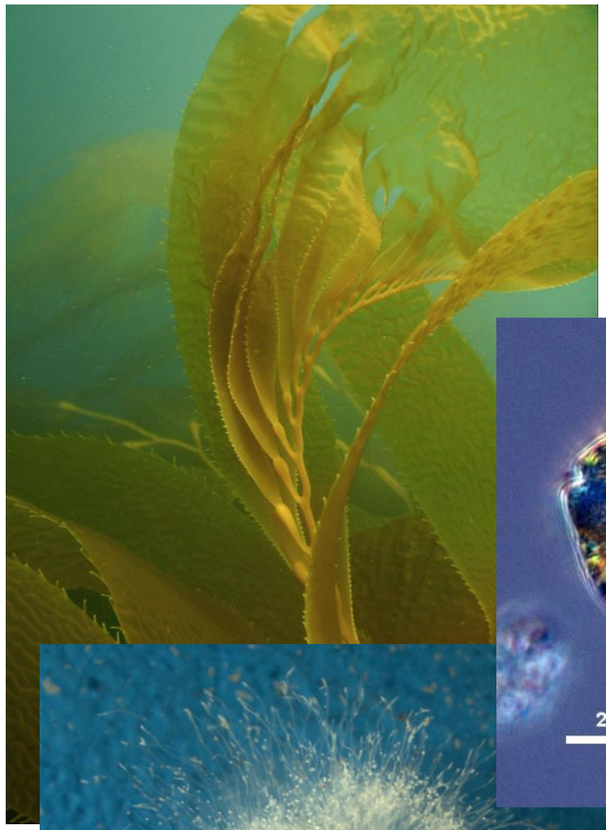
In your groups, define the word “algae.”

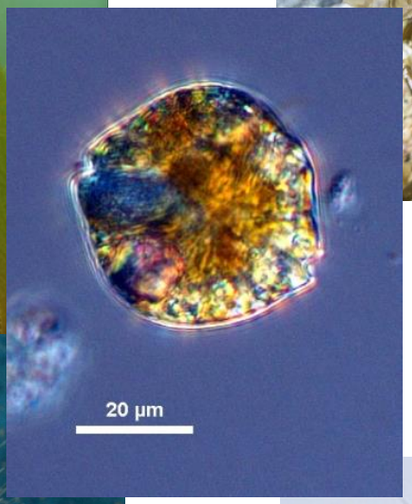
Try to include several characteristics of algae, and some examples of algae (if you can think of any).

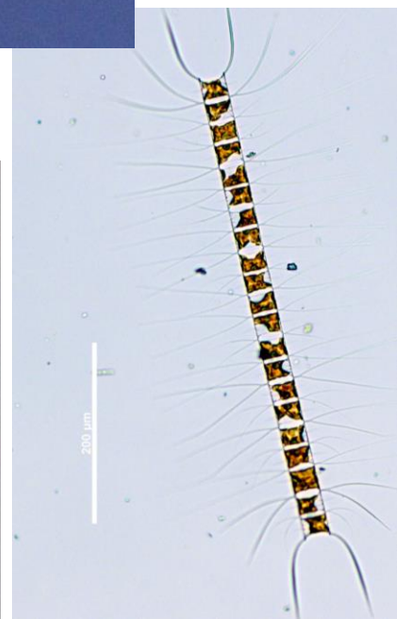
Please DO NOT use any outside resources (i.e., no textbook, internet, etc.)

Using your set of cards, decide whether each organism is “**algae**” or “**not algae.**”



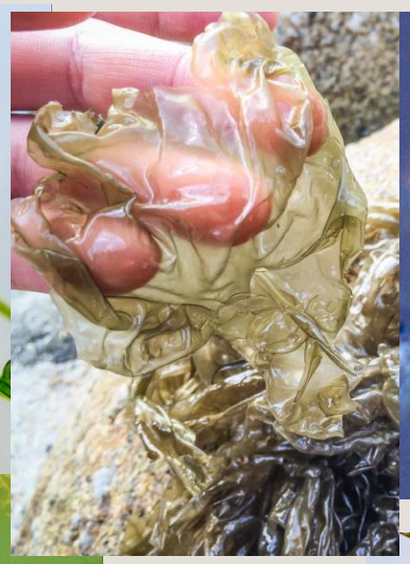


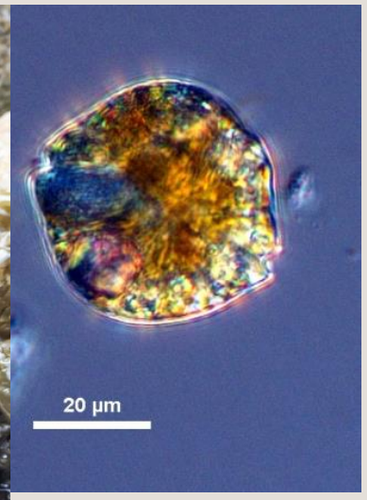


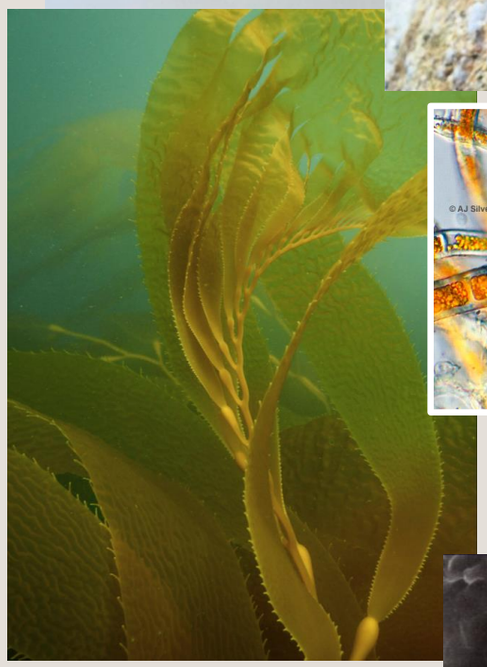


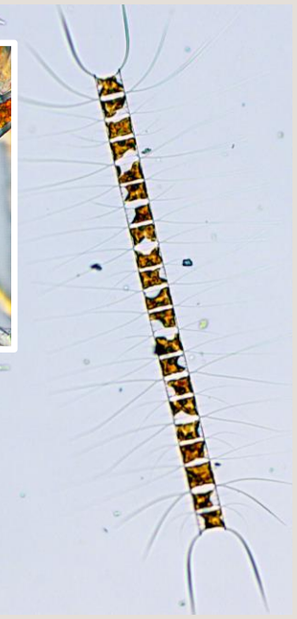
Algae	Not Algae

Algae

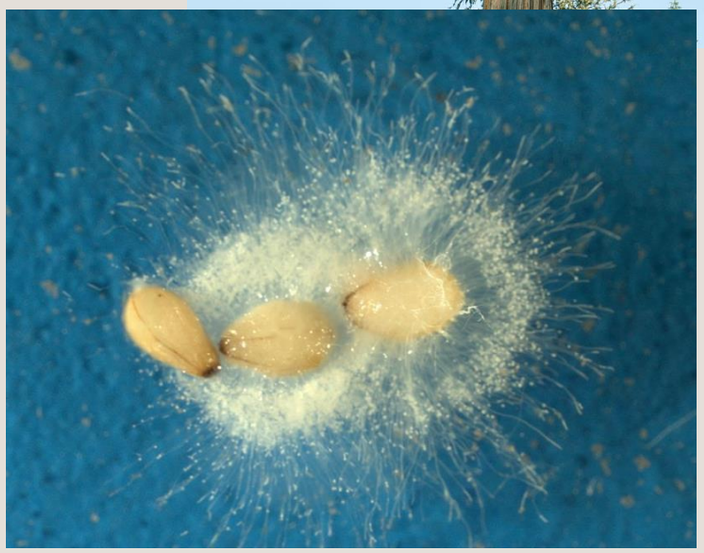








Not Algae



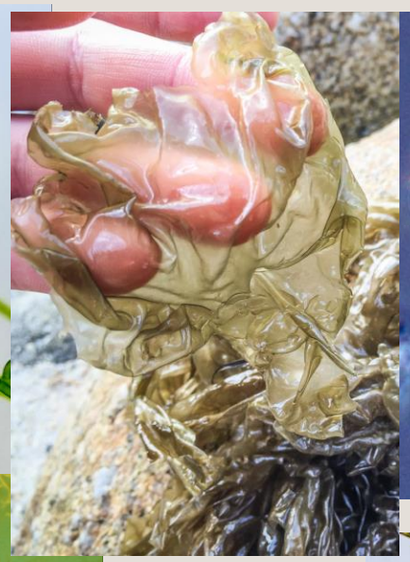
Algae	Not Algae

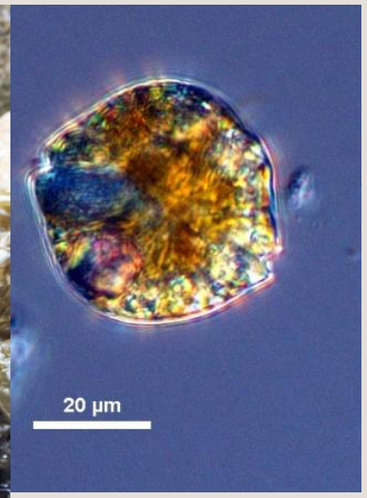
Clicker Question:

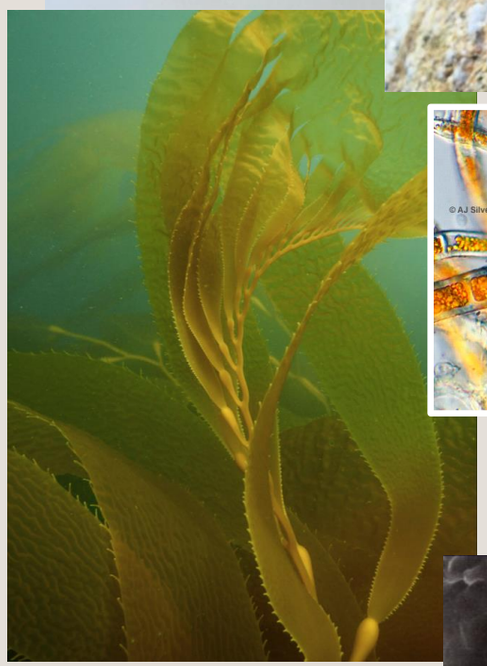
Where do *Plasmodium* and *Rhodelphis* belong?

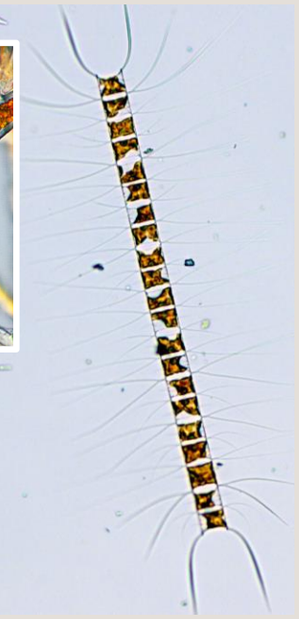
A. Both are algae.
B. Neither are algae.
C. Only *Plasmodium* is an alga.
D. Only *Rhodelphis* is an alga.
E. I'm not sure.

Algae









Not Algae

General Characteristics of Algae

Algae are:

1. Photosynthetic (usually) / from a photosynthetic ancestor.
2. Aquatic (usually), whether marine, freshwater, or brackish.
3. Unicellular or multicellular.
4. Polyphyletic, meaning some lineages are more closely related to non-algal lineages than other algae.
5. Lacking “complex” body structures (no roots, stems, leaves, xylem, or phloem) found in most land plants.
6. Lacking “complex” reproductive structures (no seeds or flowers) found in most land plants.

Many algal clades contain some species that lack typical “algae” characteristics.

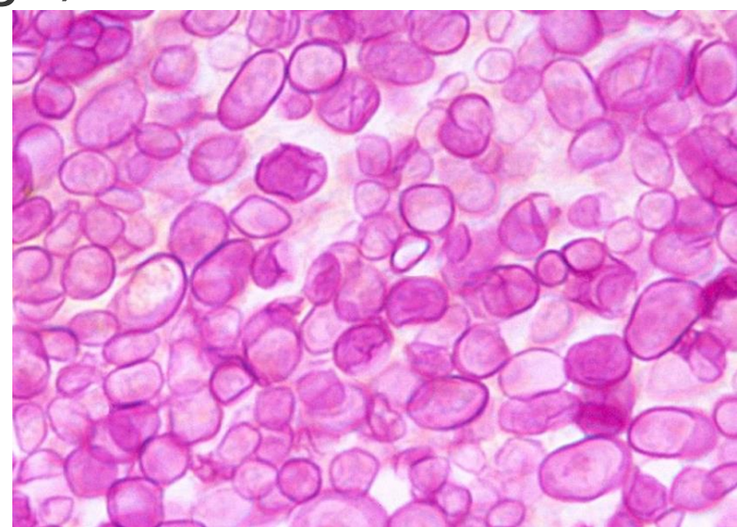
Example: non-photosynthetic algae

Dinoflagellates are considered algae, yet almost ½ of ~2,000 species of dinoflagellates consume other cells.

- Some completely heterotrophic (no photosynthesis at all)
- Some ‘mixotrophic’ – can switch

Some green algae not only don’t photosynthesize, but they also cause diseases!

- *Prototheca* causes disease Protothecosis in cattle, dogs, and humans
- *Helicosporidium* is an insect gut parasite.



Stained cells showing Protothecosis in a dog

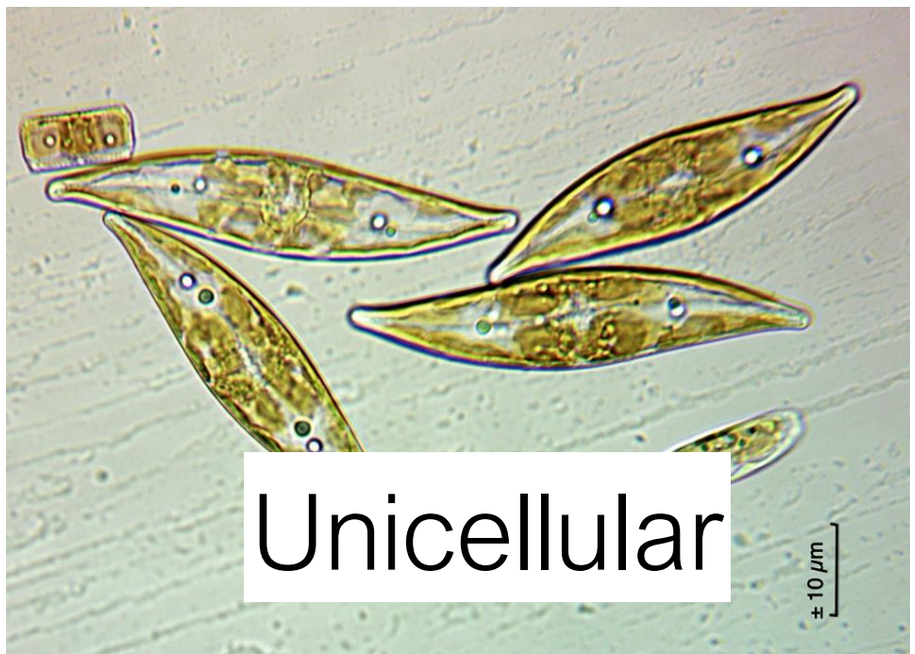
Example: Terrestrial algae (e.g., *Trentepohlia*)

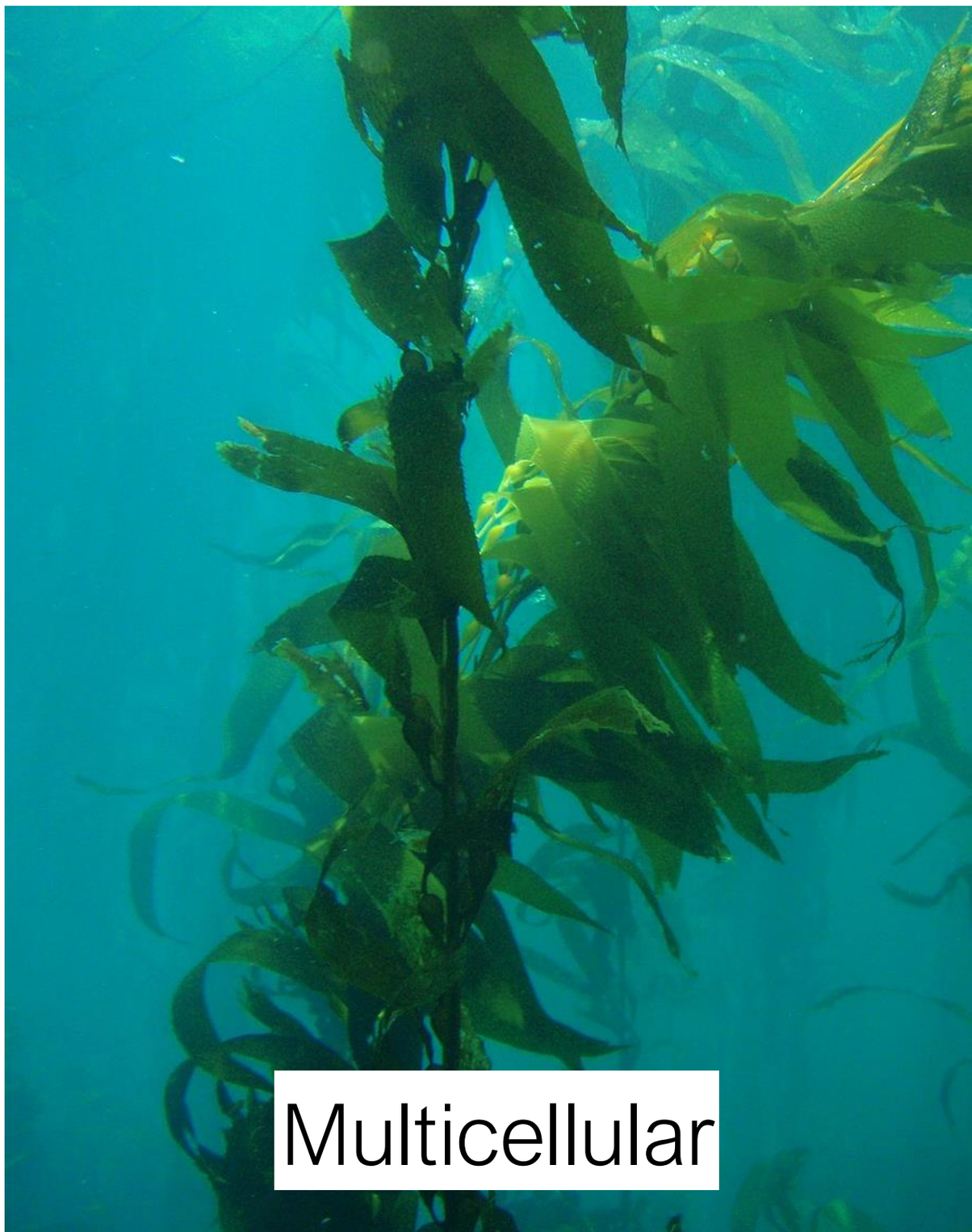
- A green alga, grows on rock faces, on plant surfaces, or within leaves.
- Color is due to special pigments that help it survive the harsh UV light from living on land (as opposed to in water).

Diversity of body types…

Microalgae can't be seen with the unaided eye; **macroalgae** can.

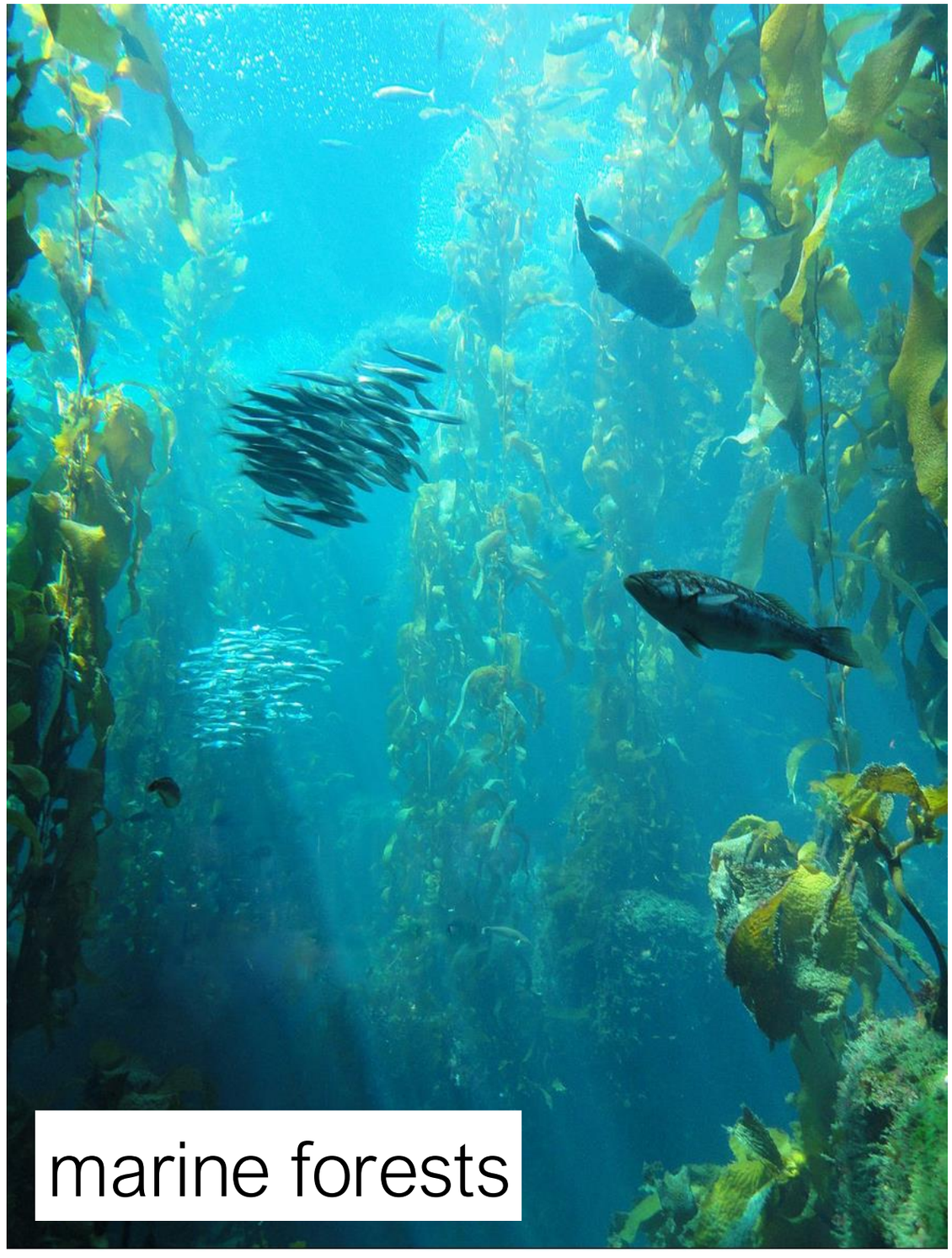
…but not all unicellular algae are microscopic, and vise versa!





If algae are so diverse, why even group them together?

- Because algae usually perform similar roles in their environment, as primary producers who form the base of food webs as well as create habitats such as:



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If algae are so diverse, why even group them together?

- Algae are everywhere — even the snow!

Goal for the next month: Learn more about algae!