Don't Eat The Eggs

Author: Laura Griffith-Cochrane, curator at the Ucluelet Aquarium
Date: October 2021

In 1923, Dr Carl Hubbs, a Californian ichthyologist (someone who studies fish), and his family caught, cooked, and ate both a Cabezon and its roe. Some of you may read this sentence and wonder why it is remarkable, but some of you may have hunted for cabezon before and know why this was probably a long discussed dinner.
Cabezon are amongst few species in the world that infuse their eggs (or roe as fish eggs are often called) with toxins. Ichthyotoxins are a classification of toxins that are used by fish, or can harm fish. There is a broad variety and distribution of these compounds. Many fish use venom to protect themselves, such as lionfish and their 28 local rockfish relatives, yet very few fish venoms have ever been studied. In fact, in the whole wide world, with all our research and resources, the only commercially available antivenom for a fish species is that for the south pacific stonefish. Dr. Hubbs described the result of his dinner as an “unhappy gastrointestinal experience”, which is quite the euphemism considering other reports of cabezon roe consumption have been described as 8 hours of “voluminous” diarrhea, tinnitus, cramping, abdominal pain, chills, sweats, and vomiting. A 2014 paper written after a couple was hospitalized for consuming the meat and roe of a 6lb green coloured cabezon found no known antidote. The poisonous compound responsible for these strong reactions is called dinogunellin, which is a type of phospholipid. Phospholipids are super important organic compounds. They are used to create cell membranes, and so while dinogunellin might be something you’d like to avoid, many other phospholipids are essential to our health.

Living in a variety of aquatic territories, from shallow eelgrass beds to deep currenty rocky reefs, cabezons are important local predators. They are the largest of the sculpins, and have been recorded at up to 25lbs, 39” long. Like all sculpins, they have large eyes, heads, and pectoral fins. They are brave beyond all imagination. They will sit out on rocky outcroppings, confident and intimidating, unhurried by the presence of divers, seals, and sea lions many many times their size. If a cabezon were being cast in a film, it would be played by Dave Bautista. They are a harvested species here on the BC coast, but there are rules about the type of gear you’re allowed to use to hunt for cabezon. Hook and line is allowed, but for those of you who love spearfishing, cabezons cannot be caught by spear. For ID help, key cabezon features are the little horn-like projection on their nose and large frilly cirri (these look like eyebrows) above their eyes. Many sculpins are referred to as ‘bullheads’. From small tidepool sculpins, to red irish lords and cabezons. They are distinctive by their large heads and mouths. These features are important to the cabezon’s behaviour as lunge predators. They dart out at anything they feel they can mostly consume. Not rarely have cabezons been found with ⅓ of their prey still existing outside of their engulfing maw.

Cabezon predation is illustrative of the complexity of food webs in our local ecosystems. Often visitors to the coast ask about what specimen is the ‘top predator’, but linear classifications of predation fail in the context of cabezons and many local fish species. Predator/prey relationships can be a delicate calculation of location, size, orientation, speed, and life-cycle stage, and can flip if any of these factors change. Sometimes cabezon are eaten by lingcod, sometimes it is the lingcod that is dinner for the cabezon. Sometimes squid and octopuses are a cabezon’s main meal, and sometimes young cabezons are captured by the creative and roving arms of the giant pacific octopus. It reminds me of long puzzle solving questions that were asked in school, (“if a train leaving the station with 4 cars is traveling east and the wind is blowing…”). If a 3” long cabezon oriented upwards along a rock feature and facing south notices a 3.5” greenling facing north but with its fins in a position to dart away, will the cabezon be able to capture enough of the greenling within its mouth to prevent it from escaping? How many days will it take to eat the entire greenling’s body?

The cabezon we currently have living in the Ucluelet Aquarium is a rich olivy kelp colour, which likely indicates that it is female. Greenish cabezons are more likely to be female, reddish ones are more likely to be male. She is still too small to be getting ready to reproduce. Right now she is the queen of the exhibit and a voracious consumer of anything that moves. Cabezons, like many north pacific species, take years to develop to reproductive maturity. Rockfish are known to take 20 years or more. After she is released, and if she makes it all the way to reproductive age, she will travel into the shallows and lay maroonish coloured eggs which her male will guard. Fiercely. It is not unheard of for divers to be rammed by these feisty fish while guarding their future offspring.