

Kellet's whelk

Kelletia kelletii

BIOLOGY FACT SHEET



Kellet's whelk laying egg capsules

Photo: scubacayman88, flickr creative commons

San Diego seafood profiles

Taxonomic description

- One of the largest sea snails found in southern California [1].
- Has spindle shaped, spiraled shell that can reach 18 cm (7") in length [1].
- Shells are white to tan with brown spiral lines., but as they age the shell gets covered with light green or purple algae and other encrusting organisms [1].
- The foot tissue is colored yellow with a few black stripes and white spots.

Distribution

- Found from central Baja California, Mexico to Point Conception, Calif [1]

Life history

- Much is still unknown about its life cycle
- Growth rates are not well studied, but are thought to be slow at 0.75-1 cm

- (0.3" to 0.4") per year until sexual maturity; and only 9 cm (3.5") after 20 years [1]
- Females become sexually mature between 6.6 - 7.1 cm (2.6 - 2.8"), slightly smaller for males [1]
- Fertilization is internal with annual spawning periods March – May [2]
- Egg capsules are deposited on hard substrate with fertilized embryos inside that develop and emerge into the water column as free swimming larvae for an unknown amount of time [2]

Habitat

- Commonly found in kelp forests and on rocky reef habitats, on both rocky, hard and sandy, soft substrates. [1]
- Usually found from 0 m (0 ft) down to 69 m (230 ft) depths. Rarely found in the intertidal zone, although occasionally at lowest elevations or in tide pools [1,2]

- Are opportunistic carnivores that feed on dead or dying organisms on the sea floor[1] or will actively pursue prey such as turban snails [2].
- Predators include the moon snail, sea stars, octopus, and sea otters [1]
- Can be seen feeding along side its predator the giant sea star.

References

- [1] Hubbard, Kristin. 2008. Kellet's whelk. Status of the Fisheries Report 2008. California Dept. Fish & Wildlife, Available: <http://www.dfg.ca.gov/marine/status/>
- [2] SIMoN. Sanctuary Integrated Monitoring Network – Kellet's Whelk – Available: <http://sanctuarysimon.org/species/kelletia/kelletii/kellet's-whelk>
- [3] Rosenthal R.J. 1971. Trophic interaction between the sea star *Pisaster giganteus* and the gastropod *Kelletia kelletii*. Fishery Bulletin 69: 669-679

Did you know?

Kellet's whelk feeds using a prehensile proboscis that extends about twice the length of the shell to reach food in crevices [3].



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Kellet's whelk pulled from a trap on the Fish Addiction, San Diego Bay.

Photo: Alisha Utter

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Seasonal availability

- In California, open season from July 1 through the first Wednesday after March 15th unless the Total Allowable Catch of 45,360 kg (100,000 lbs) for the season is reached or projected to be reached in which case the fishery closes [i]

Managing authority

- California Department of Fish and Wildlife has recently designated and regulated the species as an "emerging fishery".

Gear type

- Caught as bycatch in lobster and crab traps: In 2008, 98% of all harvested Kellet's whelks were taken via lobster and crab traps [ii]
- Harvested by hand by licensed commercial fishermen (divers collect further than 305 m or 1000 ft beyond the low tide mark)

Status of the fishery

- Commercial fishery relatively new; minimal information on the impact of recent increased commercial demands.
- Potentially vulnerable to overfishing due to slow growth rates and need for relatively high density for aggregate spawning.
- However, if the Total Allowable Catch limits are coupled with collaborative data collections & management decisions, responsible growth of this fishery should continue.
- Not yet assessed in the common sustainable fish guides (e.g., NMFS Fish Stock Sustainability Index, Monterey Bay Aquarium Seafood Watch, NOAA Fishwatch.)

Potential ecosystem impacts

- Intensive removal of this predaceous whelk, may increase numbers of its prey, grazers of kelp & other seaweeds (e.g., urchins, limpets, and snails) [iii], which can lead to seaweed overgrowth in rocky reefs & kelp forests [iv].

- Collection methods are low impact—with hand (diver) collection having virtually no impact, and traps potentially causing damage to the seafloor in rough conditions.

References

- [i] "Kellet's Whelk Fishing Regulations." Invertebrate Management Project. Department of Fish and Wildlife, 14 Mar. 2012. www.dfg.ca.gov/marine/invertebrate/kelletswhelk.asp.
- [ii] Hubbard, K. 2008. Kellet's whelk, *Kelletia kelletii*. Status of the Fisheries Report 2008. California Department of Fish and Wildlife. 28 July 2013. < <https://nrm.dfg.ca.gov/FileHandler.ashx?DocumentID=34437&inline=true> >.
- [iii] Halpern et al. 2006. Strong Top-Down Control in Southern California Kelp Forest Ecosystems. *Science* 312: 1230-1232.
- [iv] Denny, M. W., S.D. Gaines. 2007. *Encyclopedia of tidepools and rocky shores*. Berkeley: University of California Press.

Did you know?

Whelk landings in California likely pre-date 1979, but started to steadily increase in 1993 with the highest take in 2006 at 87 metric tons (the cargo capacity of a Boeing 747)!



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NUTRITION FACT SHEET

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spaghetti with scungilli from www.awellseasonedlife.com

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Edible portions

- Muscular foot which is similar to abalone.

Description of meat

- Flesh is firm and chewy if untenderized, firm and tender once tenderized.
- Meat is known to be juicy and salty [3]

Culinary uses

- Meat is usually removed from shell for use [e.g., 5]
- To tenderize, meat may be frozen for 5 min, pounded, or pressure cooked.
- Minimal cooking required, 10-15 min in boiling salt water does the trick
- Can serve from shell after lightly boiling
- Use in soups, chowders, fish pies, pasta dishes & seafood salads.
- Featured ingredient in whelk fritters & scungilli, a classic Italian salad

Nutritional information

Whelk, cooked, moist heat (3 oz)[1]

Nutrition Facts			
Serving Size 85 g			
Amount Per Serving			
Calories 234	Calories from Fat 6		
		% Daily Value*	
Total Fat 1g			1%
Saturated Fat 0g			0%
Trans Fat			
Cholesterol 111mg			37%
Sodium 350mg			15%
Total Carbohydrate 13g			4%
Dietary Fiber 0g			0%
Sugars			
Protein 41g			
Vitamin A	3%	Vitamin C	10%
Calcium	10%	Iron	48%
*Percent Daily Values are based on a 2,000 calorie diet. Your daily values may be higher or lower depending on your calorie needs.			
NutritionData.com			

Toxicity report

- No known toxins.

Seasonal availability

- Available fresh from July – March[4]

References

- [1]SELF Nutrition Data. 20013. "Mollusks, whelk, unspecified, cooked, moist heat. <http://nutritiondata.self.com/facts/finfish-and-shellfish-products/4200/2>
- [2]Waterman, J.J. 2001. Processing Mussels, Cockles and Whelk. Food and Agriculture Organization. Ministry of Agriculture, Fisheries and Food. www.fao.org/wairdocs/tan/x5894e/x5894e00.HTM.
- [3]BBC. 2013. Whelk Recipes. BBC - Food Ingredients. www.bbc.co.uk/food/whelk.
- [4]Hubbard, K. 2008. Kellet's whelk, *Kelletia kelletii*. Status of the Fisheries Report 2008. California Department of Fish and Wildlife. 28 July 2013. < <https://nrm.dfg.ca.gov/FileHandler.ashx?DocumentID=34437&inline=true>>
- [5] "Cleaning a whelk." YouTube. Posted 20 Feb 2009 by sellsfish. Web. 28 July 2013. < <http://www.youtube.com/watch?v=L8teuNuqRsg>>.

Did you know?

Prehistoric snack? Kellet's whelk shells have been found in archeological and paleontological sites in Southern California [ii]



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CULINARY INFO SHEET

Kelletia kelletii

STEP 1: CLEAN

Tools:

- Stiff Brush
- Large Pot
- Water
- Salt
- Stove
- Removal Tool
- Small Sharp Knife

Method [1]:

1. **CLEAN** In large pot, bring water to a boil. In the meantime, scrub whelk shells with a stiff brush to remove any excess debris.
 2. **BOIL** Once water is boiling, add a pinch of salt and cook whelk for 10 minutes*.
- *Be sure not to overcook or whelks will be tough!*
3. **COOL** Drain and let sit until cool enough to handle shells.
 4. **REMOVE** Insert a small knife or fork into the flesh protruding from the shell and pull gently. All of the flesh may come out, or only the edible part (portion on the right in photo 1.).
 5. **RINSE** Clean under running water, keeping only rubbery edible parts.
 6. **EMPTY** Locate the mouth, between the two short tentacles (photo 2.). Insert the fillet knife into the mouth, sharp side up. Split the gut open and wash out the contents (photo 3.).
 7. **TRIM** Slice off the operculum (the "door" at the entrance of the shell).
 8. **PREPARE OR PRESERVE** If desired, flesh can be pounded for added tenderness. The whelk can be eaten immediately or frozen for later use (photo 4.).

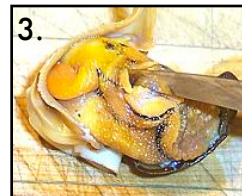
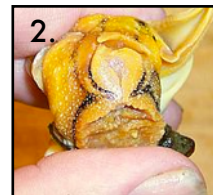


Photo Credit: Andrew Grygus; clovegarden.com [1]

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STEP 2: PREPARE

TIP: Boiled whelks are done cooking when they are tender enough to be easily pierced with a fork.

Appetizer | Sautéed Whelks with Aioli

Adapted from theglobeandmail.com [2]

Ingredients (serves 4):

Aioli

- 2 egg yolks
- 1 1/2 tbsp. Dijon mustard
- 1/2 tbsp. garlic, chopped
- Pinch of salt and pepper
- 3 tbsp. water
- 1 c. extra virgin olive oil

Whelks

- 2 tbsp. extra virgin olive oil
- 3 tbsp. butter
- 1/2 lb. (~6) whelks, cleaned
- Pinch of salt and pepper
- 3 tbsp. shallots, minced



Photo Credit:
The Globe
and Mail [2]

Method:

Aioli

1. Whisk together all ingredients except for olive oil.
2. Once combined, slowly add olive oil.
3. Add salt and pepper, to taste.

Whelks

4. Place whelks in a large pot, cover with salted water, and boil for 45 minutes. Follow above cleaning instructions from "3." forward.
5. In a pan, heat olive oil and butter.
6. Add whelks and season with salt and pepper, to taste.
7. Sauté 30-45 seconds, until heated thoroughly.
8. Before removing from pan, mix in shallots.
9. Plate whelk and drizzle with aioli.

If desired, serve over greens & fresh tomatoes.

Entree | Garlic Butter Whelks over Spaghetti

Adapted from awellseasonedlife.com [3]

Ingredients (serves 4):

- 1 lb. (~12) whelks, cleaned
 - 7 cloves garlic, chopped
 - 3/4 c. extra virgin olive oil
 - 1/2 bunch parsley, chopped
 - 1 c. white wine*
- *Non-alcoholic substitution: 1/2 c. vinegar + 1 tbsp. sugar + 1/2 c. water*
- 1/4 tsp. pepper + pinch of salt
 - 1 lb. spaghetti



Photo Credit:
awellseasonedlife.com [3]

Method:

1. In a pot, heat 5-6 cups water. Once it reaches a boil, add a dash of salt.
2. Submerge whelks in boiling water. Simmer several hours, until tender. Follow above cleaning instructions from "3." forward.
3. Turn off heat, set aside broth and cut the whelks into bite-sized pieces.
4. In a deep skillet, heat oil and sauté garlic for 2-3 mins.
5. Add the whelks, wine and broth to the skillet, adding salt to taste.
6. Simmer in skillet for 20 mins to 1 hr. Before removing from heat, add parsley and a tbsp. of oil.
7. In a separate pot, boil pasta until almost tender. Drain pasta, add to the broth, and continue cooking until pasta is done.
8. Serve immediately with a sprinkle of parsley.

SERVING SUGGESTIONS:

Whelks are best eaten boiled, poached, steamed or sautéed.

OTHER RECIPE IDEAS:

Pickled whelks; chowder; whelks tossed with salad greens.

Search for recipes online under the Italian name, "scungilli".



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References

- [1] Grygus, Andrew. Kellet's Whelk. Clove Garden. www.clovegarden.com/ingred/sf_gpwhelkz.html
- [2] Laprise, Normand. 2010. Chef's Recipe. The Globe and Mail. www.theglobeandmail.com/life/chefs-recipe-sauteed-whelks-with-aioli/article1376592/
- [3] O' Biso, Carol. 2012. A Delectable Spaghetti. A Well Seasoned Life. www.awellseasonedlife.com/a-well-seasoned-life/2012/04/a-delectable-spaghetti-with-scungilli-recipe-with-no-tomato.html