

Pacific spiny lobster

BIOLOGY FACT SHEET

Panulirus interruptus



California Seafood Council

San Diego seafood profiles

Taxonomic description

- Decapod (ten-legged) crustacean with sharp, spiny projections along upper shell and sides of tail [1,2]
- Generally red to orange in color [1,2]
- Has two antennae twice length of its body
- Lacks prominent front claws [1,2]
- Swims backwards with a flip of the tail to flee predators, otherwise able to crawl in all directions [1]
- Strong jaws can deliver powerful bite [1]

Distribution

- Monterey Bay, California to Magdalena Bay, Baja California, with highest abundance off central Baja California [1]

Life history

- Three phases to life cycle: larval, juvenile, and adult [1]
- Grow by molting exoskeleton - soft body hardens into new exoskeleton about a day after leaving the old one [1,2]
- Can regenerate lost legs, antennae with each molt [1,2]
- Produce several broods of larvae 50,000 to 800,000 in number each time [1]
- Mating takes place in deep waters from December through March [1]
- Can grow to 16 kg, although rarely found to weigh over 5 kg [1]
- Primarily scavengers, omnivorous [2]

Habitat

- Adults inhabit lower rocky intertidal zones to depths of 70 m or more, sheltered in crevices [1]
- Often found with surf grass and types of large brown kelps [1]
- Concealed during the day, often in groups within a single crevice [1]
- Leave to feed shortly after sunset [1]
- Some seasonal migration inshore from June to September, and offshore in winter months [1]

References

- [1]Engle, John Marlin. Ecology and growth of juvenile California spiny lobster, *Panulirus interruptus* (Randall). Diss. University of Southern California, 1979.
- [2]Jaffe Laboratory for Underwater Imaging. California Spiny Lobster. 2009. www.jaffeweb.ucsd.edu/node/spinylobster

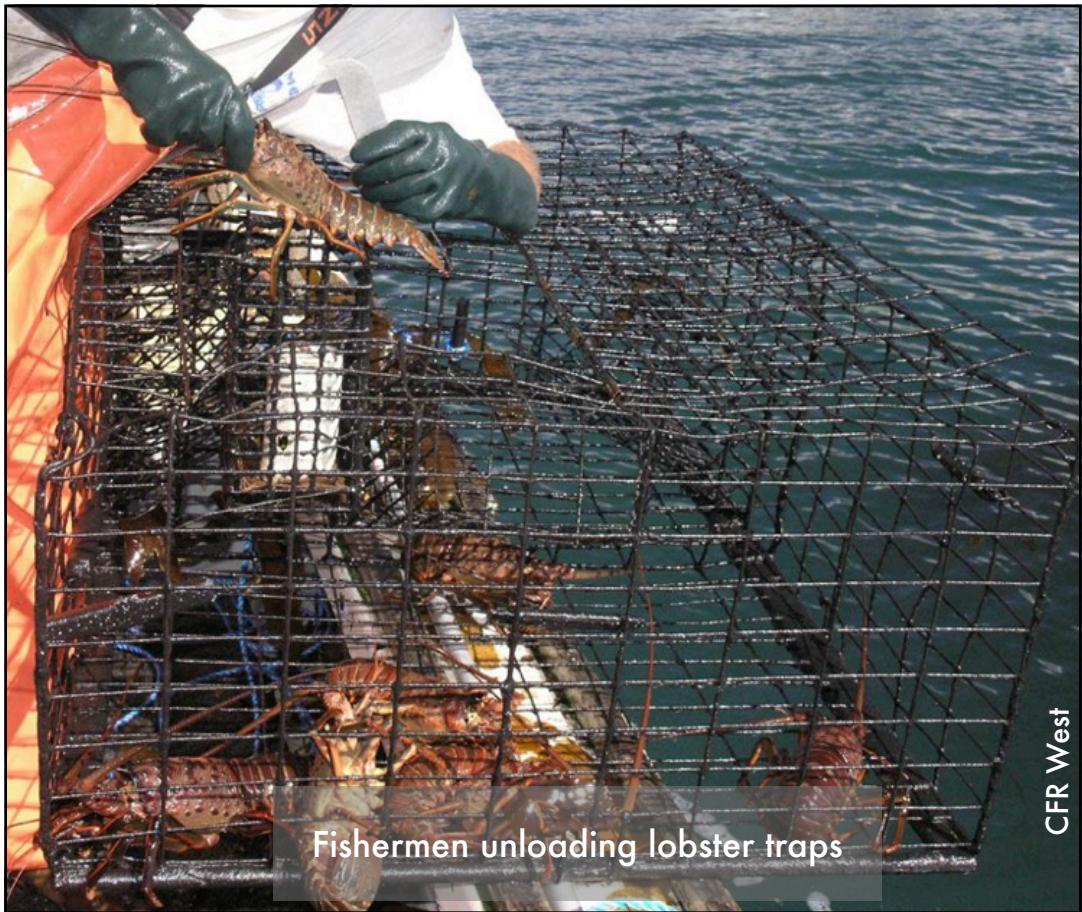
Did you know?

To intimidate predators and competitors for prey, the Pacific spiny lobster will move its antennae in a sweeping motion and make an alarming grating noise using the acoustic structures at the base of its antennae. [2]

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FISHERY FACT SHEET

Panulirus interruptus



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Seasonal availability

- Available live, fresh, in fall and winter months
- Frozen available year-round [1]

Managing authority

- Managed by Fish and Game Commission and the California Department of Fish and Wildlife [1,2]
- Implement limited access program restricting number of permits issued to commercial fishermen [1,2]
- Seasonal closure to protect breeding and molting lobsters [1,2]
- Minimum size limit imposed to protect juveniles (called "shorts" because they fall short of the required harvest length) [1,2]

Gear type

- Rectangular wire traps baited with fish and weighted down on the seafloor and around

rocky underwater outcrops in water less than 40 m (100 ft) deep [1,2]

- 300-400 traps on average used by each boat [1,2]
- Escape port built into trap allows undersize lobster to freely exit [1]
- Hoop nets used in recreational fishery [1]

Status of the fishery

- Southern California stock population targeted by three fisheries: commercial, hoop-net based recreational, and dive-based recreational [1]
- Commercial fishery consistently harvests 660,000 lbs (300+ metric tons) each season, recreational take adds additional estimated 30 to 60 percent to commercial catch [1,2]
- Stock population currently stable, fisheries sustainable [1,2]
- Some risk to future management as hoop net usage in recreational fishery gains popularity and prevalence [2,3]

- Commercial operator licenses transferable between permit holders, potentially magnifying fishing pressure on stock [2]
- Commercial fisherman lately reporting they are catching less with more effort [2]

Potential ecosystem impacts

- Bycatch rate unknown, but low impact as trap structure enables live release for common incidental species like octopus or sheepshead [3]
- Traps may damage benthic habitat via dragging and scraping - extent unknown [3]

References

- [1] California Department of Fish and Wildlife, Invertebrates of Interest: California Spiny Lobster. Available: <http://www.dfg.ca.gov/marine/invertebrate/lobster.asp>
- [2] California Ocean Science Trust. Spiny Lobster (*Panulirus interruptus*). 2013. Available: www.calost.org/pdf/science-initiatives/rapid-assessments/Spiny%20Lobster.pdf
- [3] Matthew Iacchei , Patrick Robinson & Kathy Ann Miller (2005) Direct impacts of commercial and recreational fishing on spiny lobster, *Panulirus interruptus*, populations at Santa Catalina Island, California, United States, New Zealand Journal of Marine and Freshwater Research.

Did you know?

Commercial lobster traps must have a self-destruction device approved by the Department of Fish and Game to prevent the indefinite capture of marine life by lost or abandoned traps.

[1]

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NUTRITION FACT SHEET

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Edible portions

- Body (excepting gray, feathery lungs and sand sac between the eyes) [1]
- Coral (roe) found within the body is a delicacy, but is sensitive to toxins [1]
- Most meat located in tail, some at base of antennae [1]
- Often overlooked - thin strips of meat from tail flippers [1,2]
- Sold fresh live and whole, or frozen in raw tails or meat [3]

Description of meat

- Soft-textured meat with delicate, sweet flavor [3]

Culinary uses

- Popular steamed, barbecued, roasted, or grilled, often basted with butter [1,2]
- Complements pastas, bisques [1,2]
- Once meat is removed, body and legs can be simmered for stock [2]

Did you know?

The green tomalley of a lobster, located inside the head, functions much like a liver. If eaten, it should be eaten sparingly, as it is where the lobster accumulates toxins. [1]

Nutritional information

- 1 lobster, cooked with moist heat

Nutrition Facts		
Serving Size 163 g		
Amount Per Serving		% Daily Value*
Calories 233	Calories from Fat 29	
Total Fat 3g	5%	
Saturated Fat 0g	2%	
Trans Fat		
Cholesterol 147mg	49%	
Sodium 370mg	15%	
Total Carbohydrate 5g	2%	
Dietary Fiber 0g	0%	
Sugars		
Protein 43g		
Vitamin A 1%	• Vitamin C 6%	
Calcium 10%	• Iron 13%	
*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

- Moderate mercury levels, young children should avoid consuming more than four meals per month [3]

Seasonal availability

- Fall through winter months [3]

References

- [1]Shaw, Hank. Cooking With Spiny Lobster. 2014. www.fishcooking.about.com/od/shrimpcrablobster/p/spiny_loster.htm
- [2] Ocean Enterprises. Reasons Why You Should Catch and Cook California Spiny Lobsters. 2013. www.oceanenterprises.com/blog/top-reasons-why-you-should-catch-and-cook-your-own-california-spiny-lobsters
- [3]FishChoice. Spiny Lobster (California). 2013. <http://www.fishchoice.com/buying-guide/spiny-lobster-california>

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CULINARY INFO SHEET

Panulirus interruptus

STEP 1: CLEAN

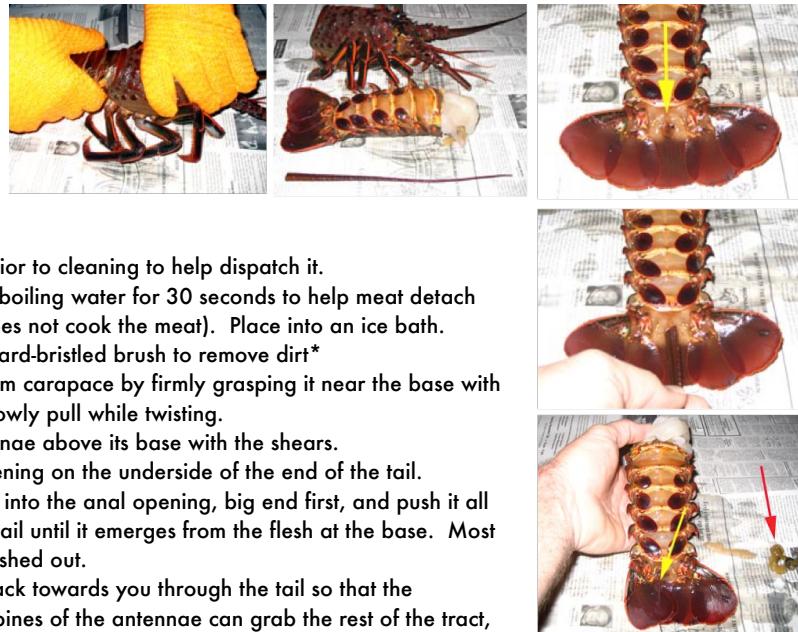
Tools:

- Gloves
- Kitchen shears

Method:

1. **FREEZE** live lobster for about 30 minutes to an hour prior to cleaning to help dispatch it.
2. **PLUNGE** lobster into boiling water for 30 seconds to help meat detach from the shell (this does not cook the meat). Place into an ice bath.
3. **SCRUB** lobster with hard-bristled brush to remove dirt*
4. **SEPARATE** the tail from carapace by firmly grasping it near the base with gloved hands, and slowly pull while twisting.
5. **CUT** one of the antennae above its base with the shears.
4. **LOCATE** the anal opening on the underside of the end of the tail.
5. **INSERT** the antennae into the anal opening, big end first, and push it all the way through the tail until it emerges from the flesh at the base. Most of the tract will be pushed out.
6. **PULL** the antennae back towards you through the tail so that the directionally facing spines of the antennae can grab the rest of the tract, and discard the material on the antennae.
7. **REPEAT** steps 5 and 6 until the antennae comes out clean.

*Necessary if planning to use shells for stock



STEP 2: PREPARE

Starter | Spiny Lobster Ceviche

Adapted from Aguaviva

Ingredients (serves 4):

- 4 spiny lobster tails, shelled, deveined, cleanly sliced
- 12 oz lime juice
- 12 oz diced tomatoes
- 8 oz coconut cream
- 8 oz coconut milk
- 1 tsp crushed red pepper
- 2 stalks green onion, finely chopped
- Sugar and salt to taste
- 1 avocado, sliced
- 2 cups vegetable oil
- 15 yellow corn tortillas, quartered



Photo credit: The Travel Journal

Method:

1. Squeeze 2 oz lime juice over lobster, sprinkle with salt, and let sit for 10 minutes in nonreactive bowl (pyrex or ceramic)
2. Add green onion, let sit until lobster meat becomes noticeably firmer, whiter, and opaque, rather than pink and translucent.
3. Stir in tomatoes, coconut cream, coconut milk, remaining lime juice, pinch of salt, red pepper flakes, and sugar. Marinate in refrigerator for a few minutes until meat is at desired texture.
4. Meanwhile, heat vegetable oil until hot in heavy skillet. Add tortilla quarters to hot oil 1 layer deep in skillet. Flip with tongs to evenly crisp tortilla chips, then remove to drain on a paper towel. Repeat for remaining tortillas.
5. Serve chilled ceviche topped with avocado, and tortilla chips alongside.

San Diego seafood profiles

Entrée | Herbed Grilled Pacific Spiny Lobster

From Los Angeles Times

Ingredients (serves 4):

- 4 spiny lobster tails
- 2 cups unsalted butter, divided
- 1 tsp fresh lemon juice
- 4 tbsp and 1 tsp chopped garlic
- 2 tbsp and 1 tsp fresh herbs (parsley, basil, thyme, tarragon, rosemary), divided
- Salt and pepper
- 4 tbsp olive oil
- Salt and pepper



Photo Credit: Los Angeles Times

Method:

1. Butterfly lobster tails and brush meat with olive oil, garlic. Season with salt and pepper, then place on hot grill for about 5 minutes, meat side down. Rotate halfway through to make grill marks.
2. Move tails from grill to sheet pan, meat side up, brush again with olive oil and garlic, and sprinkle with herbs.
3. Cut two sticks of butter into pieces, divide evenly over 4 tails. Bake at 450 degrees until centers of tails are no longer translucent (7 to 10 minutes).
4. Melt remaining butter, add lemon juice, 1 tsp garlic, 1 tsp herbs, and salt to taste. Serve mixture alongside lobster tails.

SERVING SUGGESTIONS:

Boiling and steaming lobster are considered the best ways to enjoy its delicate flavor. Grilling, baking, and frying are also popular techniques. [4]

OTHER RECIPE IDEAS:

Lobster can be used in bisques, cakes, and pastas, and even prepared raw in carpaccio and ceviche



References

- [1] www.allkayakfishing.com/hoop_netting/cleaning_lobsters.html
- [2] www.recipes.latimes.com/recipe-grilled-pacific-spiny-lobster/
- [3] www.cookingchanneltv.com/recipes/spiny-lobster-ceviche.html
- [4] www.finelobster.com/lobster-facts.asp