



elcome to **FISH ON YOUR DISH**, a newspaper supplement about local commercial fisheries written by kids for kids! The youth editorial board, the Fin-atic Reporters, fully submerged themselves into the world of commercial fisheries of the Santa Barbara Channel (SBC) region to produce this newspaper. They did the research, wrote the articles, and identified artwork and games to make this newspaper a fun learning experience. Now your students and children will learn about commercial fishing operations, factors affecting fisheries, fish and shellfish of the local waters and more through the experiences of the Fin-atic Reporters!

Why did the Fin-atic Reporters write about commercial fisheries? Because many kids (and adults) are not familiar with the commercial fisheries that occur in the ocean waters right in their own backyard. They also are confused about whether to eat local seafood because of reports of problems in fisheries worldwide. But did you know that the Santa Barbara Channel region is a productive area for fisheries, providing a substantial amount of California seafood to consumers worldwide? Combined, the four ports that serve the local fisheries (three in Ventura County and one in Santa Barbara County) were ranked third in production (50.5 million pounds landed) and third in value (\$19 million ex-vessel value) among the nine marine regions of California. Also, although some fishery stocks require rebuilding, the Santa Barbara Channel region is an area that currently has many healthy fisheries for all to enjoy.

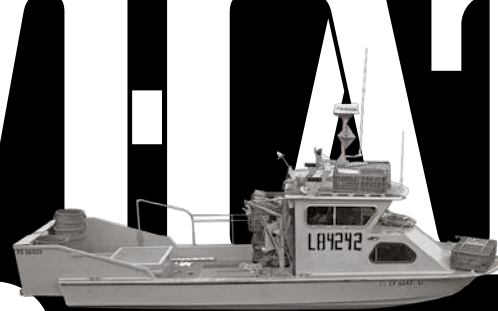
Of course, we all need to do our part to keep our fisheries sustainable and our oceans healthy. This newspaper is a first step in increasing the knowledge of your students or children about local fisheries and their complexities so they can make informed decisions regarding seafood consumption, conserving ocean resources and improving the quality of local ocean waters.

As you take the plunge into the world of commercial fisheries, your classroom or family will learn about the top local fisheries and how local fish (including shellfish) make it to your dish. Keep in mind that fisheries differ from place to place and continually change in response to many factors. Thus, it is a vast and complex world that provides many opportunities for continued research by your students or children.

*Now come aboard and let's get started!*



# WHAT IS COMMERCIAL FISHING?



**Commercial fishing is the practice of fishing and selling marine and freshwater animals and plants for a living.** Another type of fishing is recreational fishing, which is the practice of fishing for pleasure. Commercial and recreational fishing differ in the way that fishery participants obtain the organisms and the regulations that apply to them. Here we discuss only marine commercial fisheries of the local area. We define 'fish' as including both finfish (those animals with backbones and fins) and invertebrates or shellfish (those animals lacking a backbone, but often having a noticeable shell).

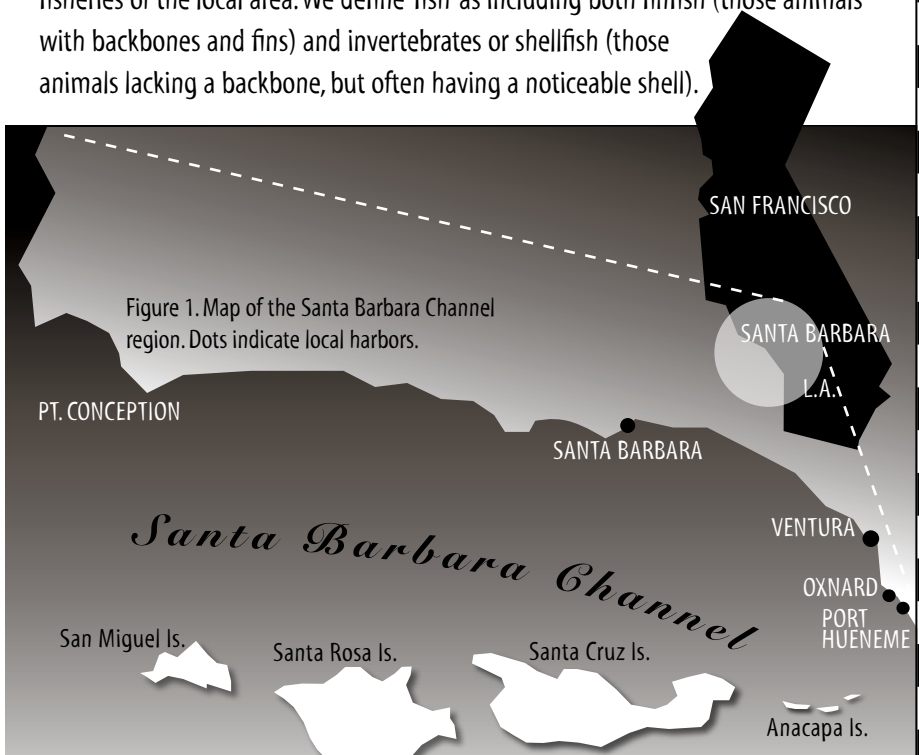


Figure 1. Map of the Santa Barbara Channel region. Dots indicate local harbors.

## The Region

The SBC is defined here as the ocean waters south of Point Conception to just south of Hueneme Canyon off Point Mugu (Santa Barbara and Ventura Counties), as well as the waters surrounding the four northern Channel Islands (San Miguel, Santa Rosa, Santa Cruz and Anacapa Islands) (Figure 1). The SBC commercial fishing communities are served by four harbors, including Santa Barbara, Ventura, Channel Islands and Port Hueneme. This region is a unique place for California fisheries because it is the transition zone where both southern and northern species occur and there are natural conditions that provide an abundance of food for the fish.

# COMMERCIAL FISHING OPERATIONS OF THE SANTA BARBARA CHANNEL



Photo:Carolynn S.Culver

**C**ommercial fishing operations use several types of gear, or kinds of equipment, to catch fish. Some operations use nets to fish. There are many kinds of nets that differ in shape, size and how they are operated. They also have different-size mesh depending on where and what they fish. This prevents the capture of juveniles and other types of fish, because they can slip through the mesh. One type of commercial net gear is a trawl net, which has “doors” on

either side of the net that hold the net open in the water while it is being pulled by the boat. Trawl nets can fish at various water depths, including just off the bottom of the sea floor. A second net gear type is a gill net, which sits perpendicular to the surface and to the sea floor. To keep the gill net stretched open, there is a cork line on top that keeps the net up and a lead line on the bottom that keeps the net down. Fish are caught as they swim into the net. A third type of net gear is the purse seine net. Purse seine nets are towed behind the boat and as the boat circles around schooling fish, so does the net. Once the net surrounds a school of fish, it is closed like a purse, the catch is scooped or pumped out of the net into a holding tank

(“fish hold”) on board and the net is then pulled on board. Traps represent another type of commercial fishing gear. They are set on the ocean floor with bait placed in them. Crab, lobsters or spot prawns are caught when they crawl into the trap and take the bait. Commercial fishery participants also use traps to catch finfish, but these traps are a little different from the lobster and crab traps. Since fish swim instead of crawl into the traps, the opening is located higher and near the middle, making it easier for the fish to enter the trap.



Photo:Carolynn S.Culver

Some animals, such as sea urchins and sea cucumbers, are taken by hand underwater by commercial divers. Divers use a hose that receives air supplied from equipment (an air compressor) on the boat when diving commercially, instead of a tank of air like recreational divers. This surface supply of air allows commercial divers to stay underwater longer because they have more air available.

Hook-and-line gear is also used by commercial fishery participants. This type of gear consists of fishing line with many hooks. Live bait, such as squid or mackerel, or artificial lures are attached to the hooks to attract the fish. The line is either extended vertically in the water column or it lies flat (horizontally) on the bottom of the ocean.

## ACTIVITY:

**MATCHING GAME**  
Match the commercial fishing method with the species fished using that method.

### Fishing gear

- Trawl **1.**
- Dive **2.**
- Hook and line **3.**
- Purse seine **4.**
- Trap **5.**
- Gillnet **6.**

### Species

- a. White seabass
- b. Lobster
- c. Squid
- d. Sea urchin
- e. Halibut
- f. Rockfish

## FUN FACT:

**How many crew members do local fishery participants usually have on board, not counting themselves?**

Answer: One. Many of the local commercial fishing operators use small boats and thus have few crew members (one at most), unlike the large fishing operations often seen on Discovery Channels' "Deadliest Catch." Local purse seine operations are one exception.



# #1 MARKET SQUID

**D**id you know that the No. 1 fishery in the Santa Barbara Channel is the commercial squid fishery? Squid is a coastal pelagic species (CPS) that lives in the water column of the open sea, as opposed to on the ocean floor, and reproduce in shallow sandy areas along the coast and Channel Islands. The CPS fishery includes both finfish and invertebrates, with the primary fin-tastic five species being market squid, sardine, anchovy and two species of mackerel. However, squid alone is ranked as the top fishery of the region.

## Market squid

When the commercial squid fishery of California began in the mid-1800s (making it one of the oldest fisheries in the state) it wasn't nearly as advanced as it is today! Chinese fishermen took their skiffs (boats) out fishing late at night in Monterey Bay. Torches were attached to the front of the skiffs to attract the squid and the fishermen pulled in their nets by hand. Today, commercial fishery participants attach large lights to tall poles (masts) in the middle of specialized light boats, and use the powerful lights to attract squid to the surface of the water. These light boats work with the purse seine boats to catch the squid. After the light boat attracts a concentration of squid, the purse seine vessel encircles or 'wraps' the squid with the purse seine net while the light boat exits the circle. After scooping or pumping the catch onboard, most of today's fishermen use equipment to pull their net out of the water by rolling it on a drum. Talk about a large step in technology!

While squid is the No. 1 fishery for the Santa Barbara Channel, during El Niño conditions the squid disappear and almost none are landed in this area. Fishery participants must either fish elsewhere or fish for a different species

## ACTIVITY:

**Are squid a type of invertebrate (shellfish) or vertebrate (finfish)?**

**ANSWER:** Invertebrate (shellfish). Squid lack a backbone, and an external shell, thus they are a shell-less invertebrate. They are certainly interesting-looking animals! They have an eye on either side of their long, pointed, slender soft body, right above 10 tentacles. Eight of these tentacles are used to help the squid swim, while the other two are used for feeding. Squid grow to be about 12 inches long, and normally live for less than one year.

# CPS #1

## Coastal Pelagic Species (aka 'wetfish')

The fin-tastic five CPS species (including squid) are often referred to as "wetfish" because they were traditionally transported from the ocean and packed 'wet' (raw) in cans with minimal processing. In other words, they were processed "wet from the sea." While the squid fishery itself is valuable, the other primary CPS also support an important local fishery.

### Northern Anchovy

*Engraulis mordax* – now that's a mouthful! – is the scientific name for northern anchovy. Northern anchovies are mainly used as fish oil, feed for poultry and frozen and live bait, although some restaurants serve anchovies on pizza or Caesar salad.

### Pacific Sardine

As demand for food grew during the early 1900s, a result of World War I, the Pacific sardine fishery was born. However, by about the middle 1900s, the sardine resource and fishery collapsed and sardine fishing was halted. The fishery has since recovered because of favorable environmental conditions and use of precautionary fishing regulations. Today California sardines are the most important wet fish fishery after squid, and the wetfish industry markets sardines to 26 countries worldwide, as well as California.



### Pacific Mackerel

The Pacific mackerel fishery was reinvigorated in the 1930s and 1940s when the Pacific mackerel abundance and the efficiency of canning techniques skyrocketed. Pacific mackerel are still commercially fished today, and are mainly eaten by people and used as fish meal.



# SEA URCHINS

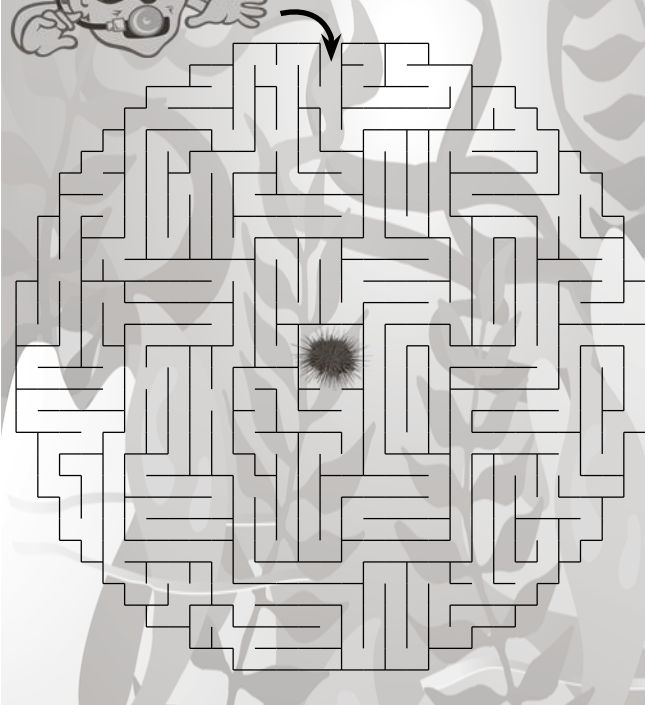
#2

What is bigger than a baseball, has a hard shell with spikes like a porcupine and lives in rocky reefs eating kelp? A sea urchin!

This spiny creature has been one of the most valuable fisheries of the Santa Barbara Channel for more than 20 years. Originally most of the red sea urchins were sold overseas, but now many of the urchins are actually sold in the U.S. The part of the urchin that is eaten is commonly known as "uni." "Uni" is the roe or gonads that are processed from the urchin. The roe is a yellow-orange color, and a popular sushi item. The Fin-atic Reporters got the chance to try fresh uni and most liked it and would like to eat it again.

Sea urchins are not fished from onboard a boat. Instead, they are 'picked' by commercial divers. They use 'hookah,' a type of surface-supplied diving gear. The 'hookah' hose is attached to a compressor on the boat that provides the diver a large supply of air. They do not use Scuba (self-contained underwater breathing apparatus) gear because this gear does not provide enough air. The divers use a metal claw called a "rake" to pick the spiny urchins. However, the divers don't take just any urchin. They have to figure out whether the roe quality is good – this takes skill and experience. To determine the quality of the roe the diver opens a few urchins and looks at the roe color and texture. Once quality urchins of legal size are picked, the urchins are kept alive onboard the vessel until delivered to a market or a processor.

## Kelp forest maze



## Kelp forest maze

Pretend you are a commercial diver for one day. See if you can swim your way through the lush kelp forest maze and find the sea urchin bed.

## FUN FACT: What critter was considered a pest before it supported a valuable fishery?



Answer: Sea urchin. In the 1970s, sea urchins were considered a pest because they were destroying kelp beds. They were being poisoned or smashed into pieces to reduce their numbers.

# SEA CUCUMBERS

#9

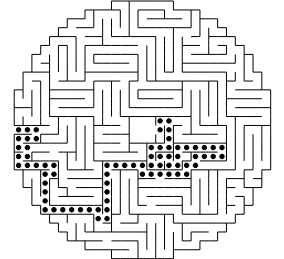
Sea cucumbers are related to the sea urchin and are an invertebrate. However, they have a soft body instead of a hard, external shell. They look like a land slug, only a lot bigger – adults can be more than a foot long! Their bodies are covered with bumps that look like warts, which are called papillae. They are very strange-looking sea creatures.

Sea cucumbers are bottom dwellers. Two species of sea cucumber are fished in the Santa Barbara Channel- the California and the warty sea cucumber. The California sea cucumber is mostly fished using trawl gear, whereas the warty sea cucumber is mostly fished by commercial divers. Sea cucumbers are delivered to processors who typically boil, dry and salt the meat, shipping the final product to specialty markets.



Photo: Carolyn S. Culver

Kelp forest maze answer





Fishery participants have many regulations, such as a size limit and a season when the lobster can be fished. This is why local lobsters are available only between October and March. These and other regulations help maintain healthy lobster populations by allowing adult lobsters to reproduce before they can be caught, protecting female lobsters carrying eggs and protecting lobsters when they are molting. (Besides, no one wants to eat soft, squishy lobster!)

To catch lobsters, fishery participants – known as ‘trappers’ – use traps that have bait in them that attracts the lobsters inside. Small lobsters entering the traps can leave the trap through “escape ports,” small openings in the trap. Legal-sized lobsters are removed from the traps, loaded off the boat and sold live to markets, restaurants and buyers who distribute them elsewhere. That’s how those delicious lobsters make their way from the sea to your dinner table!



Photo: Diane Pleschner-Steele

## East Coast Lobster



Photo: Carolyn S. Culver



# CRABS

# RIDGEBACK AND SHRIMP

The Santa Barbara Channel is a favorite area for ridgebacks and spot prawns. Ridgeback and spot prawns are found in deep waters. Ridgebacks live in waters ranging from 145 to 525 feet deep, while spot prawns are found even deeper, from 150 to as much as 1,600 feet! Spot prawns are fished in many areas using traps, while ridgeback shrimp are fished using trawl nets in areas of mixed mud and sand. Special devices (fish excluders) have been

developed for trawl nets to limit the amount of bycatch – the other fish that are

accidentally caught in the net that are not being targeted. The little bit of bycatch that may come up with the shrimp can often be returned to the ocean alive.



Unlike the lobsters found in the region, the crabs fished here have claws that provide a lot of meat for seafood lovers. Rock crab and sheep crab (a large type of spider crab that has a spiderlike appearance) are the main species fished locally. Although you may not have eaten any local rock crabs, you’ve probably had a relative, the Dungeness crab. Believe it or not, there are three local rock crabs in the Santa Barbara Channel that are similar but smaller than their northern relative, the Dungeness crab! Sheep (spider) crabs, while also delicious, are not as popular as other crabs partly because they are difficult to eat. Unlike other types of crabs, a sheep crab never molts after reaching adulthood. Instead, the shell just keeps getting thicker, making it more difficult to crack!

## Rock Crab

Crabs are caught with methods similar to lobster fishing, but much larger openings are needed on the traps to fish the large sheep (spider) crab. Like lobster, the local crabs are sold alive. These delicious local crabs are found not only in the waters off our coast, but also in happy crab consumers’ stomachs!

### WORD SCRAMBLE

Researchers working in collaboration with some commercial fishery participants have catalogued their catch by listing the scientific name of each species they caught (column one). See if you can unscramble the letters in the middle column to figure out what they caught.

Scientific name	Scramble	Common name
1. <i>Sardinops sagax</i>	iiPfeac idsearn	
2. <i>Paralichthys californicus</i>	irfCaoainl hitablu	
3. <i>Cancer anthonyi</i>	oelywl rcko cabr	
4. <i>Loligo opalescens</i>	teakMr uisdq	
5. <i>Strongylocentrotus franciscanus</i>	dre esa inhucr	
6. <i>Semicossyphus pulcher</i>	oiaalCanfr ehasphdee	
7. <i>Atractoscion nobilis</i>	tehwi sssaeba	
8. <i>Panulirus interruptus</i>	linCfaairo niyps olesrtb	
9. <i>Sicyonia ingentis</i>	cgribeadk rnapw	
10. <i>Parastichopus parvimensis</i>	wtray eas rubcecum	

#3

Everyone thinks all lobsters have large claws, right? Not always! The lobster you're probably thinking of is the East Coast cold water lobster, often referred to as the American or Maine lobster. The West Coast lobster (or spiny lobster) has no claws, but a big, delicious tail. Unlike the Maine lobster, which defends itself with its claws, the West Coast lobster uses its tail. The tail propels the lobster backward so it can escape quickly. The tail also has sharp spines that can puncture an animal (or a human hand!) if the lobster is captured and not handled a certain way. While the Maine lobster uses its claws to eat, West Coast lobsters must crush food in their powerful jaws.

Since lobsters have exoskeletons (a hard shell that encloses their body), they have to molt (shed their shell) in order to grow. They could not get any bigger if they could not get out of and rebuild their exoskeleton. Crabs and shrimps also molt to grow, unlike other invertebrates (squid, urchins, scallops) and finfish. Although animals that molt get the benefit of a new strong, clean shell, molting can be dangerous. Until their new shell hardens, lobsters and other animals that are more vulnerable to predators.

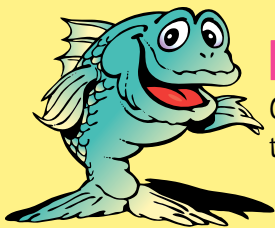


## West Coast Lobster

# AVAILABILITY OF SEAFOOD

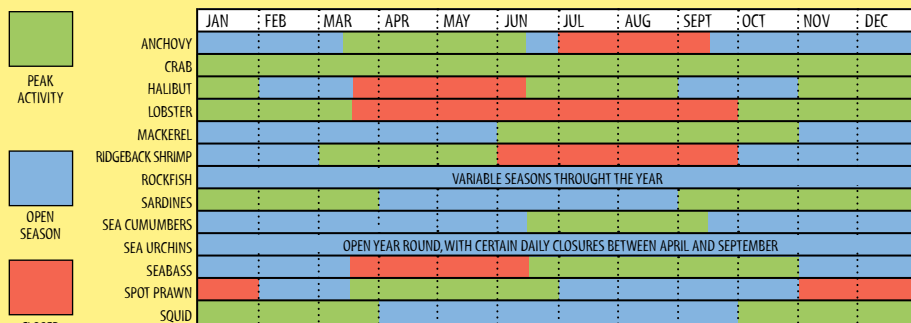
Did you know that the availability of seafood is similar to that of crops? Like crops, not all varieties of seafood are available throughout the year. Regulations protect most fish during certain times of the year. See the chart below to determine the peak seasons when your desired local seafood is typically available.

Remember though, that if the weather is bad, such as high winds and big swells, fishery participants may not be able to go out and fish. Ocean conditions may also change, triggering fish to move to another location. *If the fishermen can't find 'em, they can't fish 'em.* Don't be disappointed if the fish you wanted isn't available the day you want it. Rather, be understanding and adaptive by trying another product or by coming back another day.



## DID YOU KNOW?

Commercial fishing is one of only a few remaining industries that provides food by "hunting and gathering" methods.



SOURCE: Modified from chart provided by the Joint Oil/Fisheries Liaison Office, Santa Barbara, California.  
 NOTES: 1. Many other species are available. Highlighted here are just those discussed in this special section.  
 2. The seasons illustrated here are based on 2007 regulations and typical local fishing activity.  
 3. Fishing seasons do not necessarily open or close on the 1st or 15th as could be interpreted from this chart. Please check the commercial fishing regulations if you would like to know specific dates.

# SPOT PRAWN AND



#4

Did you know that the No. 1 seafood consumed in the United States is shrimp? It is also a favorite of the Fin-atic Reporters! There are two really delicious and high-quality shrimp fished in our region. Spot prawns are large and brightly colored. They are sold alive, bringing the fishery participants a premium price per pound. Ridgeback shrimp, also known as 'peel and eat' shrimp, are smaller but very popular among seafood consumers.

*Spot Prawn*



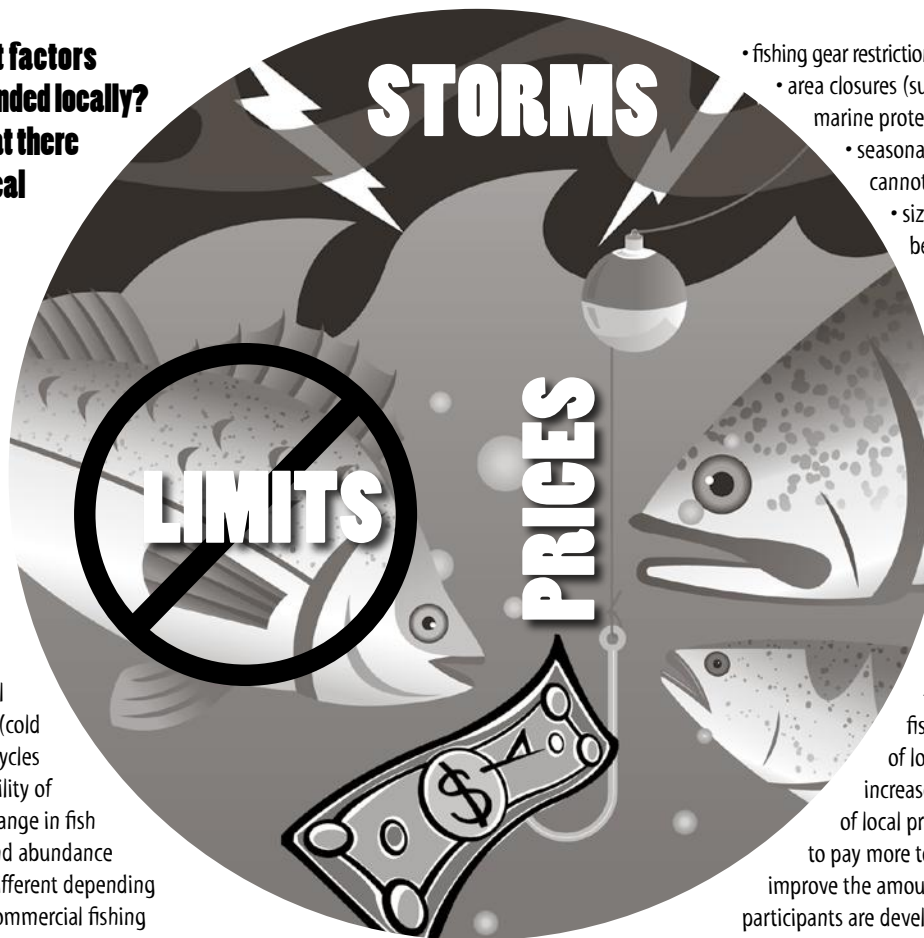
# FACTORS AFFECTING FISHERIES

**Have you ever wondered what factors influence what is fished and landed locally? You may be surprised to find that there are many factors that affect local fishing operations.**

## Environmental Factors

Commercial fisheries are impacted by many environmental factors. Ocean currents are often changing, impacting where fish are found. Weather conditions often change as well. Storms, rough seas and high winds may prevent fishery participants from leaving the harbor, or can cut their trip short if they are already out to sea.

A bigger environmental impact occurs with dramatic climatic changes, such as El Niños (warm water events) and La Niñas (cold water events). Both El Niño and La Niña cycles affect water temperature and the availability of nutrients for fish. As a result, there is a change in fish distribution (where the fish are found) and abundance (the number of fish), and the change is different depending on the fish. These changes impact local commercial fishing operations when the events occur, and often for several years after the events. The distribution of fish often changes right away. For example, during an El Niño some fish can no longer be found here in commercial quantities (such as squid), while others not usually found here thrive (like yellowtail). However, for fish that stay in the SBC throughout these events, changes in their abundance may not happen for a few years. Lobsters often increase in number many years after an El Niño, while sea urchins may decrease in number following this same event.



- fishing gear restrictions (only certain gear types can be used)
- area closures (such as refuges, marine reserves and marine protected areas)
- seasonal closures (specific times when fish cannot be caught)
- size limits (only certain sizes of fish can be taken)
- sex limits (only a certain gender of fish can be taken)
- fleet-wide quotas on total fish taken per season (a set amount of fish that can be taken each year for a particular fishery)
- trip limits (a limit on the amount of fish that can be taken with each fishing trip)

## Economic Factors

Fisheries are also impacted by one more very important factor - economics. Competition with other fishery products can impact the sales of local seafood. Have you noticed the increased gas prices? This too affects the price of local products as fishery participants have to pay more to get to and from where they fish. To improve the amount paid for local products, local fishery participants are developing new markets that recognize and promote high - quality seafood. For example, there is more local product being sold directly from the fishing boat to the consumer. This is similar to what local farmers have done by selling directly from the farm. Also, new domestic markets have been developed -- sea urchins used to be primarily shipped overseas, but not anymore. More products, like halibut and shrimps/prawns, are also being kept alive to serve up-scale markets that pay more for the freshest high quality products.

## Regulatory Factors

Other factors influencing fishing activity of the SBC include the federal and state regulations regarding commercial fishing. These regulations limit the ability of fishery participants to provide seafood to the consumer, but they are intended to sustain fishery resources. Local fishery participants have to follow many rules and regulations, including:

- limits on the number of participants in a fishery (called limited-entry or restricted access)

## DID YOU KNOW?

The average age of a SBC commercial fishery participant is fifty-two. Few young people are entering commercial fishing. As a result, the future survival of the local fishing community could be at risk and the consumer may have trouble buying locally caught seafood.

## ACTIVITY:

**What limits the amount of fish that our local commercial fishery participants can provide to consumers?**

**A**

Fish population size (the number of fish available)

**B**

Consumer demand

**C**

Limits on the size of fish that can be taken

**D**

Bad weather

**E**

A and D

**F**

A, C, and D

**G**

All of the above

# NEARSHORE FINFISH FISHERY #6

The nearshore finfish fishery includes a large group of fish, with 19 primary species. Most of the fish targeted in this fishery are rockfish. Other types of fish include the sheephead, cabezon and scorpionfish. These fish live in rocky reefs and kelp beds, and are fished commercially using traps and hook-and-line fishing.



*Rockfish*

The nearshore finfish fishery boomed in the 1990s when restaurants and markets had increased demand for live finfish. The fishery exploded before there were many regulations in place to help control the amount of fish taken. Now there are many regulations that require close attention by fishery participants. The regulations are very complicated and vary from one area to the next.

Fishery participants, managers, scientists and environmentalists are all working together to ensure a sustainable nearshore finfish fishery for years to come.



*Sheephead*

## FUN FACTS:

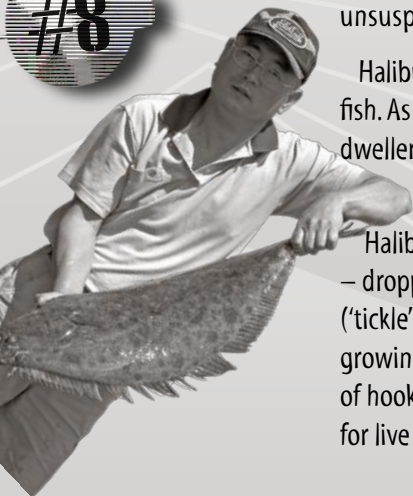
1. Sheephead can change sex, first being female and then becoming male.
2. What fish has been named for its large head? The cabezon, which means 'bigheaded' in Spanish.

## HALIBUT

California halibut, which are abundant in the Santa Barbara Channel region, are a type of flatfish. A flatfish is flat like a Frisbee, and spends much of its time on the bottom of the ocean floor. Like other flatfish, halibut partially bury themselves on the sandy bottom, preparing to ambush unsuspecting prey.

Halibut are born with eyes on either side of their heads and swim in the water, just like regular fish. As they develop, one eye migrates to the other side of the head and they become bottom dwellers. This is an adaptation that enables them to live on the bottom of the sandy ocean floor.

Halibut are fished using gill nets and trawl nets. The trawl net has an interesting feature – dropped-loop chains (also called 'tickler' chains) that hang from the net opening and skim along ('tickle') the bottom of the ocean floor, startling fish into the nets. Halibut are also fished by a growing group of part-time commercial fishery participants using "bounce ball," a method of hook-and-line fishing. These methods have evolved to supply the increasing demand for live halibut. Fishery participants receive a premium price for these live fish.



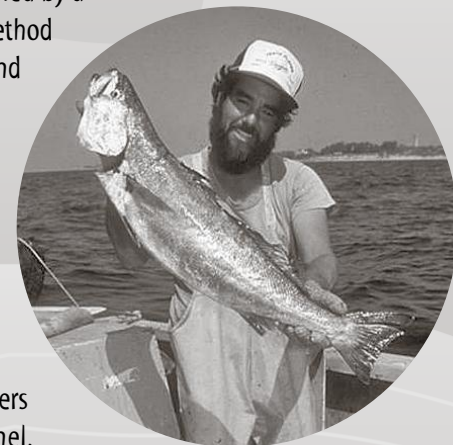
#8

#10

## YELLOWTAIL AND WHITE SEABASS

White seabass are a popular commercial and recreational fish. They live in coastal waters from San Francisco to Mexico, and are often abundant in the Santa Barbara Channel. Yellowtail are more abundant in San Diego and Mexican waters, but when large numbers move into the Santa Barbara Channel (typically when warm water conditions exist, as during El Niños) they become an important part of the local catch. White seabass and yellowtail are commercially fished at least three miles offshore using gill nets. Although controversial and now prohibited in Southern California waters (from shore to three miles offshore), gill nets may be used to catch limited quantities of fish in federal waters (three to 200 miles offshore).

White seabass landed commercially in Santa Barbara Harbor weigh an average of 20 to 30 pounds. There have been reports of some seabass in the area weighing up to 100 pounds! White seabass are fast growers, reaching almost 2 feet in their first two years. How do we know this? Researchers have examined the ear bones ("otoliths") of fish, counting the rings (similar to trees) to determine the age.



*White Seabass*



# SUSTAINABILITY



Do you think the fisheries of the SBC are sustainable? This is a difficult question to answer because people define sustainability in different ways. Some people just consider the condition or status of the fish population. With this in mind, you may have heard that commercial fisheries are not doing well. However, many of these stories are based on the condition of global fisheries, which are different from the local conditions of the SBC. With the implementation of new regulations in California over the past 10-15 years, and current ocean conditions, most SBC fish populations are currently considered to be healthy. However, there are some fish populations (such as some rockfishes and abalones) that still need time to rebuild. Also, it is important to remember that the condition of the ocean waters of the SBC are constantly changing, so all fisheries need to be watched closely with regulations changed (either increased or decreased) when appropriate.

Having more regulations may seem like it couldn't hurt. But, sustaining fisheries also requires that fishery participants are able to support themselves and their families, all while meeting the demands of the consumer and maintaining the fish populations. Balancing the biological, economic and social aspects of sustainability is tricky, but it is vital for having healthy commercial fisheries for fishery participants, consumers and the marine environment. Like an ecosystem in the ocean, a change in one aspect of sustainability will affect the ability to maintain the other fishery components.

## WORD SEARCH

### Sustainable Commercial Fisheries

(Answers on back page)

- BALANCE
- ECONOMIC
- LOCAL
- SOCIAL
- BIOLOGICAL
- ECOSYSTEMS
- POPULATION
- CHANGING
- GLOBAL
- REGULATIONS

S B M L J E Y J C R N L J X Q  
Y N N A Q B C Z H Q N S J U R  
D B O C E E R O A N X C B B G  
K G O I W I F M N T N A M A P  
H J O G T Q R A G O I H W F O  
M F U O I A X O I Z M L W L H  
I T W L U T L T N I Z I U A N  
R G N O D Z A U G E K U C C C  
R S Q I L L B A G L A I C O S  
X L K B U A I R D E J F Y L C  
S C X P L K B I H G R Z J G O  
W P O A B E C O S Y S T E M S  
W P N L D V T N L E C Y E R L  
U C I N J T I B F G A L H J J  
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# SEAFOOD CONSUMPTION

## Why do you think so many people like to eat seafood now? It wasn't always so popular.

Seafood is popular for several reasons. First, we now know there are many health benefits that come from seafood. Omega-3s (beneficial fatty acids) come from both finfish and shellfish, and are known to reduce the risk of heart disease. Second, the quality and the freshness of the fish have improved thanks to the way fish is handled out at sea and the ability to ship live and fresh seafood overnight. Typically, locally caught seafood is fresh because it can be delivered the same day it is caught; the closer the catch, the fresher the seafood. Third, there are now many different kinds of fish available because fish from all over the world are available to consumers – you don't have to live near the ocean to enjoy fresh seafood.

Here are some tips that we Fin-atic Reporters picked up while learning about our local fisheries that will improve your fish eating experiences:

### When selecting fish, remember these three steps:

- 1. Look** Does it look fresh? The eyes of the fish should be clear.
- 2. Smell** Does it have a "fishy" smell? A strong odor is an indication that the fish is not fresh!
- 3. Feel** Is it cold and firm to the touch? It should have firm, shiny flesh and should not be dry or mushy in any areas.

### When purchasing seafood at the grocery store:

Pick the package farthest in the back of the display case. The older seafood is likely on the top, and also warmer than those in back of the case. Also, make sure there is no freezer burn (dry spots).

Pick up your fish at the end of your shopping trip. Fish must stay very cool, so make sure it is the last item you

put in your shopping cart, take it straight home and refrigerate (or freeze) it right away. Consider using a small cooler to transport the seafood home.

### ONCE AT HOME:

Keep it cold!

### Eat it soon after it was purchased:

- If you will eat it within 2 days of purchase, keep it refrigerated.
- If you will eat it after more than 2 days of purchase wrap it in plastic food wrap (and then foil if desired) and freeze it.

For more information on how to handle seafood, keeping seafood fresh, the nutritional value of seafood and to obtain delicious recipes, visit these websites:

<http://seafood.ucdavis.edu/consumer.html>

<http://seafood.ucdavis.edu/consumer/health.htm>

<http://ca-seafood.ucdavis.edu>

<http://www.aboutseafood.com>

## Where can you purchase fresh, local seafood?

Weekend morning fishermen's markets at the local harbors (often Saturday mornings), where you can buy fresh seafood directly from local commercial fishery participants off their boat.

Visit local fish markets

Go to local restaurants that advertise local seafood dishes

## FUN FACTS AND DID YOU KNOWS:

The average person in the United States consumed about 16.5 pounds of seafood in 2006!

White seabass are gutted and cleaned at sea to maintain high quality and freshness. Experienced fishery participants can do this in 30 seconds!



# OCEAN STEWARDSHIP

You too can help sustain the fisheries of the SBC region and keep the oceans healthy! Here are a few suggestions:

## Regarding fisheries and seafood consumption:

1. Learn more about the operations of local commercial fishing. Fishing operations often differ among locations. If you are worried about how the fish are caught or what the condition of the fish population is, talk to local fishery participants, managers and scientists about the fishery. Knowledge is power!
2. Buy delicious local seafood to support fisheries that many people (fishery participants, managers, scientists, public) work hard to sustain.
3. Get involved in fisheries management - you can influence local fishery regulations!

If you want to get involved, educate yourself and do some research. This will help you decide your own views on issues regarding local commercial fisheries. Remember, the issues are often different for local, regional, national and international fisheries.



## At the beach:

4. Help clean up your local beaches by not littering. If you see trash, pick it up and put it in the trash can so it doesn't go into the ocean. Did you know that it can take 200-500 years for a soda can to decompose? That minimum amount of time (200 years) is how long some sea urchins are believed to live!

## At home:

5. Be careful not to spill chemicals (such as gasoline, car oil and cleaning products) in your garage or on the driveway. If you do, do not wash the chemicals off the garage floor or driveway into the storm drains. Anything going into the storm drain will end up in the ocean, polluting the water and possibly killing marine life. Also, make sure you dispose of all chemicals in an environmentally safe way – dispose of them at your local hazardous waste site.

We, the Fin-atic Reporters, encourage you to chip in to help keep the ocean clean and healthy. If we all do our part, future generations can see and enjoy the same things we have. Being able to eat fresh, local seafood – or even just seeing it delivered at your local working harbor -- depends on everyone working together and doing their part to keep our environment healthy.

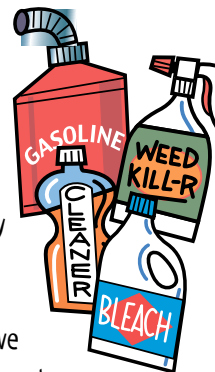


Photo: Carolynn S. Culver

## FUN FACT:

Local fishery participants also do many things to keep our ocean healthy and productive. Here are two such special activities:

1. They participate in the Fisherman Oil Response Team (FORT) where they use their boats and special gear to clean up spilled oil so they can help save marine animals and habitats in the ocean.
2. They continue to participate in research and management that helps with understanding and sustaining local fishery participants and marine resources. Some fishery participants also tax themselves to generate money for research and management.



## Word Search answers from page 10.

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## OTHER STATEMENTS

The order of the top fisheries is based on the average of the ex-vessel value for a five-year period (2001 through 2005) for landings for the region (not a specific harbor), with the exception of the white seabass/yellowtail fishery. For detailed information, please refer to: Culver, C.S., J.B. Richards and C.M. Pomeroy. 2007. Commercial fisheries of the Santa Barbara Channel and associated infrastructure needs. California Sea Grant Technical Report. Publication T-062. 100 pp.

If you are interested in additional educational materials regarding California fisheries, please e-mail Dr. Carolynn (Carrie) Culver: cculver@ucdavis.edu. Also, please visit the Web site at: <http://ceventura.ucdavis.edu>.

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