

*Chesapeake
Treasure*



*Maryland
Seafood*



*brought to you by
The Maryland Department of Agriculture's
Seafood Marketing Program*

Maryland's Pride



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The Native Americans called her “great shellfish growing water.” Depending on the Chesapeake Bay for a large part of their diet, they fished with spears and crabbed with hand-knotted nets.

In the early 1900s commercial fisheries were established along the Bay’s shorelines. Today, fathers and daughters, mothers and sons—all work side-by-side, as they have for decades, harvesting and processing wholesome Maryland Seafood.

For centuries, Marylanders have taken pride in their greatest natural treasure—the Chesapeake Bay. The Bay provides infinite resources for food, recreation and transportation. It is the nucleus of an industry that provides the best seafood in the world. Many residents and visitors have enjoyed recreational boating and fishing as well as “Chesapeake Cuisine.” One of the most valuable assets the Chesapeake offers is striped bass, our rockfish. Rockfish has become the national and international ambassador for the

Maryland Seafood Industry, along with delicious blue crabs and plump, savory oysters.

Whether catching and cooking their own dinner or enjoying a fine meal out, Marylanders are lucky to have such a bounty in their own back yard. Generations have sampled culinary pleasures from the Chesapeake Bay—from local favorites to gourmet specialties. Steamed crabs and oysters-on-the-halfshell, and crab imperial and oysters casino are served in kitchens and restaurants across Maryland, America and the world. Maryland Seafood—safe, nutritious and delicious!



Bountiful History



The Maryland Seafood Industry has Some of the Strictest Seafood Safety Standards in America.

Consumers can feel confident that Maryland Seafood from the Chesapeake Bay and Atlantic Ocean is safe to eat. It is not by chance that Maryland enjoys the reputation as a provider of the highest quality seafood available. To protect this valuable resource and safeguard public health, the State has implemented important programs to ensure clean, wholesome shellfish, finfish, crabs and processed seafood.

Maryland has one of the most extensive seafood safety systems in the country. It is a coordinated effort by the

**Safety
First**

Departments of Health and Mental Hygiene, Natural Resources, Environment and Agriculture. These agencies monitor and test the water, fish and shellfish, as well as seafood processing plants.

According to the State's Department of Health and Mental Hygiene, Maryland Seafood is and continues to be safe to eat. There is no record of anyone becoming ill from eating fish from Maryland waters.



The *Pfiesteria* Phenomenon:

Facts and Data

What was all the news really about?

Pfiesteria is not a virus, fungus or bacterium. It is not contagious or infectious, and cannot be transmitted like a cold or flu. Any human health problems associated with the microbes stem from its release of toxins into the river and estuarine waters.

A natural part of the marine environment, *Pfiesteria piscicida* is a tiny, one-cell microbe known as a dinoflagellate, which has most likely existed in the Chesapeake Bay for thousands of years. It goes through 24 different life stages; four of these stages are toxic. *Pfiesteria* normally exists in nontoxic forms, feeding on algae and bacteria in the water.

Scientists believe that *Pfiesteria* only becomes toxic in the presence of a large number of fish, perhaps triggered by their secretions or excrement in the water. Excess nutrients, common pollutants in coastal waters, may be one cause of *Pfiesteria* outbreaks that can be managed.

*Where was *Pfiesteria* causing problems?*

The Chesapeake Bay has 4,500 miles of coastline. Less than 1% was affected in 1997. The *Pfiesteria* problem involved only about 10,000 fish, primarily menhaden. It was localized to the Pocomoke and Chicamacomico Rivers and Kings Creek, in Somerset and Dorchester counties on Maryland's lower Eastern Shore. *Pfiesteria* and *Pfiesteria*-like species are known to occur in coastal waters from the Gulf of Mexico along the east coast as far north as the Delaware Bay.

How are Federal & State officials dealing with past problems and future possible events?

With the help of federal funding, the State of Maryland has intensified its programs that monitor waterways and fish populations, and strengthened its data-gathering and inspection procedures. Additionally, the States of Virginia, North Carolina and Delaware have joined with Maryland to share biological and medical information about *Pfiesteria*.

Federal agencies involved in the effort include the U.S. Environmental Protection Agency, the National Oceanic and Atmospheric Administration, the Centers for Disease Control and Prevention, the National Institutes of Health, the Food and Drug Administration, the U.S. Geological Survey, and the U.S. Department of Agriculture. These agencies are working together to make current, accurate information widely available to the public, both directly and through State outreach and public education programs.



Maryland State Agencies

and their role in seafood safety.

Seafood of the highest quality is produced by Maryland seafood harvesters, processors, distributors and retailers who take great pride in their products. They are licensed and inspected by State agencies, local health departments and the U.S. Food and Drug Administration to further ensure their product's wholesomeness.

The Maryland Department of the Environment

monitors chemical contaminant levels in fish, shellfish and crabs found in Maryland waters. This has been an ongoing activity since the early 1970's. The MDE also monitors the bacteriological quality of the State's 1.2 million acres of shellfish growing waters. This assures that only the cleanest and safest areas are certified by MDE for the catching of oysters and clams. In addition, shell stock samples may be taken directly from the Bay and its tributaries and examined for their bacteriological quality as an additional safeguard for the consumer.

The Maryland Department of Health and Mental Hygiene

controls licensing and inspection of seafood processors and wholesale distributors. Shellfish and crabmeat plants are inspected monthly to ensure safe and sanitary processing of seafood, plant cleanliness and product temperature control. Samples of shellfish and crabmeat are taken monthly and analyzed for compliance with bacteriological standards. The Department also inspects fish processing facilities and restaurants.

The Maryland Department of Natural Resources

manages the protection, enhancement and balanced use of the State's natural resources for present and future generations. It is responsible for the establishment and implementation of regulatory programs to protect the Bay and other natural habitats.

The Maryland Department of Agriculture

plays two distinct roles in assuring the consumer of safe and wholesome seafood. The State Fish Health Diagnostic Laboratory, under the Department of Agriculture, provides fish health certification. The lab also tests crabmeat for an industry-sponsored voluntary quality assurance program. The Department of Agriculture's Weights and Measure section inspects millions of packages annually at the wholesale and retail levels to assure that packages contain the stated quantity of product and to identify possible product tampering.





The Federal Government's Role in Seafood Safety

After years of preparation, the seafood industry, in cooperation with the federal government, is the first to undertake a comprehensive analysis of its operations to make sure finfish and shellfish products are even safer.

The FDA Office of Seafood has initiated a mandatory fish inspection program that is based on the Hazard Analysis Critical Control Point (HACCP) system. This state-of-the-art food safety system was originally developed for astronauts to ensure safe food in space. The program requires companies to anticipate key stages in seafood processing and handling where problems can occur. These "critical control points" are then monitored to ensure that problems don't occur. Each seafood processor is required to keep detailed monitoring records of their procedures for review by federal and state inspectors. Companies must also follow rigorous sanitation standards on facility cleanliness and worker hygiene. Records must be carefully maintained and monitored by companies and officials.

The FDA also has issued its updated Model Food Code, which is designed to help state and local governments prevent foodborne illness. The code incorporates HACCP principles and outlines practices for safe food handling at the retail level.

Hold on to your end of the "safety net."



When you hear "seafood safety," think of a safety net designed to protect you, the consumer, from foodborne illness. Every facet of the seafood industry, from harvester to consumer, plays a role in holding up the safety net.

The role of state and federal agencies, fishermen, aquaculturists, retailers, processors, restaurateurs, and scientists is to provide, update and carry out the necessary handling, processing, and inspection procedures to give consumers the safest seafood possible. The consumer's job is to follow through with proper handling techniques, from purchase to preparation. It doesn't matter how many regulations and inspection procedures are set up; the final edge of the safety net is held by the consumer.

Purchasing, Handling & Storage Tips

Helping you hold your safety net

Purchasing: *know your source!*
Always purchase seafood from a reputable seafood dealer.

Fresh Finfish

- Fresh fish should have a mild sea breeze odor. A strong fishy or ammonia odor is not acceptable.
- Whole fresh fish should have bright, clear and shiny eyes. Scales should be shiny and cling tightly to the skin. Look for bright pink or red gills. Avoid any fish with sores or lesions on the skin.
- Steaks and fillets should be moist with firm and shiny flesh. The flesh should spring back when pressed.
- At the market, make sure that cooked seafood products are not in contact with raw seafood products in the display case.



JOHN BILDAHL

Fresh Shellfish

- * "Shell on" products such as clams and oysters should be purchased live. Shells of live clams and oysters may gape naturally but will close tightly when tapped indicating they are alive.
- * Live crabs will show some leg movement.
- * Fresh shucked oysters have a fresh odor. A clear slightly milky or light grey liquid should surround freshly shucked oysters.
- * If in doubt about the source of raw oysters and clams, ask seafood market personnel to show you the certified shipper's tag that accompanies "shell on" products or check the shipper number on the container of shucked oysters.



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Transporting, storing and handling

- ➡ Get seafood purchases home and into the refrigerator as quickly as possible. Don't leave perishable items in hot cars for extended periods unless packed in ice or in a cooler. It is a good idea to transport seafood in an ice-packed cooler from the store to your home.
- ➡ Store fresh fish in its original wrapper.
- ➡ Keep seafood products cold to keep them safe. Maintain a refrigerator temperature between 34° and 40°F and your freezer at 0°F or colder. You may want to keep your seafood purchase packed in ice in your refrigerator until you are ready to prepare it. Discard ice and wash containers thoroughly after use. This will doubly ensure your food will remain safe, wholesome and delicious.
- ➡ Oysters and clams should be refrigerated in containers covered with clean, damp cloths—not with airtight lids. Use fresh shellfish within one or two days.
- ➡ If you are not going to use your seafood within one or two days of purchase, freeze it. However, do not refreeze previously frozen products.
- ➡ Keep frozen fish and shellfish at 0°F. For best quality use them within three to six months. The longer these foods are frozen, the more likely they are to lose flavor, texture and moisture.
- ➡ Refrigerate or freeze leftover cooked foods immediately in moisture proof packages or containers.

Preparation of seafood and safety tips

- ✓ Always wash hands thoroughly with hot soapy water before and after handling raw seafood.
- ✓ Don't leave seafood out of the refrigerator for more than two hours, including preparation time and time on the table.
- ✓ Never defrost seafood on the kitchen counter—use the refrigerator, cold running water or the microwave method.
- ✓ Never place cooked food on a plate that previously held raw seafood.
- ✓ **Never** put cooked crabs in the same basket that came with the live crabs.
- ✓ Always marinate fish or shellfish in the refrigerator, never at room temperature. Discard marinade after use.
- ✓ Wash containers, utensils, knives, plates, cutting boards and other surfaces touched by raw seafood with hot soapy water before reusing them.

FIGHT BAC!

 <p>CLEAN Wash hands and surfaces often.</p>	 <p>SEPARATE Don't cross contaminate.</p>
 <p>CHILL Refrigerate promptly.</p>	 <p>COOK Cook to proper temperatures.</p>

Keep Food Safe From Bacteria™

Cooking

Finfish The 10-minute rule is a good guide to cook fish and applied to baking at 450°F, boiling, grilling, steaming, and poaching only. Measure the fish—whole, steaks, or fillets—at its thickest points. Figure 10 minutes of cooking time for each inch of thickness.

Cook a one-inch thick fish steak five minutes on each side. Pieces of fish that measure a half inch or less do not need to be turned. Add five minutes if the fish is cooked in foil or sauce. Double the cooking time for frozen fish that has not been defrosted. Fish is done when the flesh is opaque and begins to flake easily when tested with a fork at the thickest part. You can also check with a thermometer. Fish is usually ready when its internal temperature reaches 160°F.

Shellfish Shucked oysters and clams become plump and opaque when cooked and ready for eating. The edges of the oyster start to curl. Overcooking can cause them to shrink. Their shells should open when cooked.

Crabs Make sure crabs are lively before placing in a pot. Discard any crabs that appear to be dead. The crab pot should have a raised rack a minimum 2 inches high. Add equal quantities of water and vinegar to just below the level of the rack. Layer crabs; sprinkle each layer with a mixture of seafood seasoning and salt. Cover and steam until crabs are red (about 25 minutes).

Eating Raw Seafood

Oysters and clams harvested from approved waters, processed in sanitary conditions and properly refrigerated are safe for raw consumption by healthy individuals. Harvesting waters are monitored by state and local jurisdictions. If excessive levels of contaminants are found, commercial harvesting of clams and oysters is prohibited. Raw or partially cooked oysters and clams should not be eaten by individuals with certain pre-existing or underlying health conditions, including:

- ✗ Liver disease
- ✗ Chronic alcohol abuse
- ✗ Diabetes
- ✗ Inflammatory bowel & stomach disease
- ✗ Steroid dependency
- ✗ Acquired Immune Deficiency Syndrome (AIDS)
- ✗ Medical treatment which suppresses the immune system (i.e., chemotherapy)



Nutrition Facts:

*Maryland
Seafood is
good for you!*



While the media and scientists still debate the value of various food groups, one food group has continued to be an excellent nutritional source—seafood. Nutritionists, dietitians, and health and food educators have known for years that seafood is nutrient-dense and high in protein. It is generally low in calories and fat—the fat that is found in seafood is rich in polyunsaturates and Omega-3 fatty acids. Most seafood is also high in protein, low in sodium and packed with vitamins and minerals. Seafood is easy to digest and easy to prepare.

Seafood can go a long way toward helping consumers achieve healthy dietary goals. The bonus, consumption of fish oils, may provide added significant health benefits. Fish oils are unique in that they contain a large portion of highly unsaturated fatty acids called Omega-3 fatty acids.

Omega-3s discourage many processes involved in heart disease. They make blood clotting more difficult thereby preventing the attack itself. They change how the walls of the blood vessels interact with different cells in the blood. Omega-3s relax our arteries, help keep them from becoming clogged and improve blood circulation in the heart. They also can change the chemistry of the heart, improving heartbeat, bloodflow and chemical reactions in the blood vessels. Omega-3s lower blood fats and blood pressure which makes heart attacks less likely. They also keep our arteries open by discouraging the build up of “plaque” in our blood vessels.

Benefits of Eating Nutritious, Delicious Maryland Seafood Regularly:

- Reduces the chance of developing heart disease
- During pregnancy and breastfeeding, ensures the proper development of brain, neural and visual tissue in developing infants
- May prolong life after a heart attack
- Usually lowers blood triglycerides (fats)
- May improve function of the heart and reduce damage from heart disease
- Can modestly lower blood pressure reducing risk of heart attack and stroke
- May improve symptoms of certain inflammatory diseases such as arthritis and psoriasis
- Easy to digest and prepare
- It's delicious!

SEAFOOD

**Take
it to
Heart**

Chesapeake Cuisine



Spring Crab Salad

- 2 pineapples, cut in half length-wise, center scooped out
- 1 pound Maryland backfin crabmeat, cartilage removed
- 1 cup pineapple, chopped
- 1/2 cup chick peas (optional)
- 1/2 cup fresh parsley, chopped
- 1/4 cup walnuts, chopped
- 2 medium apples, sliced 1/4"
- 2 tablespoons lemon juice
- lettuce or romaine

Celery Seed Dressing

- 1/2 cup cider vinegar
- 3/4 cup salad oil
- 3-1/2 tablespoons confectioners sugar
- 1/2 teaspoon salt
- 1/2 teaspoon paprika
- 1/4 cup onion, chopped
- 1/4 cup pineapple juice
- 1/2 tablespoon celery seed

Prepare pineapples. In a medium bowl, combine crabmeat, pineapple, chick peas, parsley and walnuts, and toss gently. Slice apples and cover with lemon juice. Line pineapple with lettuce or romaine. Mound 1/4 of the crab mixture on each piece of lettuce. Arrange apple slices around crab mixture. Top with a small piece of apple. Refrigerate until ready to serve. To make dressing, combine all ingredients in a blender and liquefy. Refrigerate and serve chilled. Serves 4.

Trout Crepes

Crepe Batter

- 2/3 cup flour
- 2 small eggs, beaten
- 1/2 cup skim milk
- 1 tablespoon oil
- pinch salt
- 1-1/2 teaspoons oil for frying

Filling

- 12 ounces trout fillets
- 1/2 cup fresh parsley, chopped
- 1 cup fresh mushrooms, sliced
- 1/4 cup black olives, sliced
- 1/2 tablespoon margarine
- 2 tablespoons white wine
- 3 tablespoons low calorie mayonnaise
- 1/8 teaspoon each pepper, persillade
- 1/2 teaspoon salt
- 1/4 teaspoon beau monde

Sauce

- 1 can cream of mushroom soup
- 1/2 can water
- 1/4 cup fresh mushrooms
- pinch white pepper
- paprika for sprinkling

Preheat oven to 350°F. Combine batter ingredients in a small bowl, mix well and set aside. In a shallow casserole dish, combine fillets, parsley, mushrooms, olive, margarine and wine. Cover and bake for 10-15 minutes. In a bowl, combine mayonnaise with spices. Drain fish and vegetables and add them to the mayonnaise mixture, stirring gently. Place in warm oven until ready to use. Brush a 6" skillet with oil. Pour 1-1/2 tablespoons of batter in skillet, swirl around until it covers the skillet and fry until golden, turning once. Place crepe between paper towels in a warm oven. Prepare sauce by combining ingredients in a saucepan and heat until boiling. Spoon about 2 tablespoons of filling on crepe shell, roll up and pour sauce over each. Sprinkle with paprika. Serves 5.



*For additional recipes,
write for our cookbooks
and brochures.*



Free State Baked Stuffed Rockfish

- 1 4-5 pound rockfish, dressed salt and pepper
- 1 tablespoon lemon juice oil for basting
- Skipjack Oyster Dressing

Wash and dry fish thoroughly. Sprinkle inside cavity with salt, pepper and lemon juice. Put in shallow, foil-lined baking pan. Stuff cavity of fish loosely with dressing and secure edges. Baste liberally with oil. Bake at 350°F, basting frequently, until fish flakes easily when tested with a fork, 45 to 60 minutes. Serves 6.

Rockfish Veronese

- 1/4 cup olive oil
- 1/2 cup chopped onion
- 1/2 cup chopped green olives
- 1/2 cup chopped green pepper
- 1 tablespoon fennel seed, if desired
- 2 cups chopped ripe peeled tomatoes (about 5 medium tomatoes)
- 1 cup white wine
- 1/2 cup tomato paste (one 6-ounce can) salt and pepper, to taste
- 2 pounds rockfish (striped bass) fillets

Put olive oil in saucepan and sauté onions, olives, green pepper and fennel seed. Mix in tomatoes. Cook about 5 minutes longer. Add white wine and tomato paste and simmer until mixture of sauce is thick, approx. 20 minutes. Wash and dry fish. Put fish in a shallow baking pan and spoon sauce over fish. Bake at 450°F for ten minutes per inch of thickness of fish or until fish flakes easily when tested with a fork. Serves 4 to 6 (4 cups of Veronese Sauce).



Skipjack Oyster Dressing

- 2 large stalks celery
- 1 medium onion
- 1/2 cup (1 stick) margarine or butter
- 1 teaspoon salt
- 1/2 teaspoon lemon and pepper seasoning
- 1/8 teaspoon mace
- 1/8 teaspoon tarragon
- 1/8 teaspoon poultry seasoning
- 1/2 teaspoon lemon juice
- 1 pint shucked oysters
- 8 slices day-old bread, cubed

Finely chop celery and onions. Sauté in margarine or butter until tender. Mix in seasonings. Add oysters with liquor and simmer until edges of oysters begin to curl. Remove from heat and gently mix bread cubes. Adjust moisture with water, if desired. Makes 4 cups.



Grilled Trout Fillets

- 2 pounds trout fillets
- 2 cups Italian dressing
- 2 lemons, cut in wedges

Place trout fillets in baking dish. Pour dressing over fillets, cover and refrigerate for 2 hours. Place fillets on a hot, oiled grill. Baste fillets frequently with dressing and cook for about 10 minutes. Turn and baste again. Fillets are done when they just begin to flake when tested with a fork. Serve with lemon wedges. For convenient cooking on charcoal grill, cover grill with foil and poke holes in the foil to circulate heat. Serves 6.

Stuffed Soft Crabs

- 12 medium Maryland soft crabs, cleaned
- 1 pound Maryland backfin crabmeat
- 1/2 cup (1 stick) butter or margarine

Dry soft crabs with paper towels. Remove all cartilage from crabmeat. Place soft crabs in shallow baking pan. Remove top shell from crabs and stuff each crab cavity with about 3 tablespoons crabmeat. Replace top shell. Melt butter and pour evenly over crabs. Bake at 400°F until shells turn red and crabs are slightly brown, about 15 minutes. Serves 6.



LISA GLORIOSO

Testament to the quality of any body of water is migrating waterfowl. From geese to swan, the Chesapeake Bay continues to be the winter home to many species of these and other migratory birds. The Tundra Swan, pictured above, is known as the "Ambassador of the Wetlands." These beautiful birds travel thousands of miles each winter from Alaska and Canada to survive on the rich ecosystem that is the Chesapeake Bay.

Robert L. Erlich, Jr., Governor

Michael S. Steele, Lt. Governor

**Maryland Department of Agriculture
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