

Seafood and Public Health

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**State of
The Science**

September 20, 2017

Session Overview

- State of public health in the US
- Current seafood consumption recommendations: USDA/HHS Dietary Guidelines, FDA/EPA Fish Advice
- Current seafood and omega-3 consumption
- Low intake of seafood and omega-3s implications
- Clearing the path from science to public awareness/urgency



State of Public Health in the US

- Most experts agree that half or more of premature deaths in the US are preventable through diet and lifestyle changes.¹
- Per the CDC, the US spends 86% of healthcare dollars treating chronic diseases, including mental health.²
- Excesses of the traditional Western diet lead to high risk for chronic disease that can only be ameliorated with adoption of a healthier dietary pattern that is rich in nutrient rich foods, including seafood.³ At the same time, food production must follow sustainable and ethical principles.⁴
- Essentially, the outlook for human health and environmental health depend in large part with what we put on our plates each day.



7 of the Top 10 Causes of Premature Death in US from Chronic Diseases¹

Inflammation is a leading contributor to chronic diseases.

Heart disease is the #1 cause of death in the US.



Stroke



Heart Attacks



High Blood Pressure



Diabetes



Chronic diseases are preventable through:

Diet

Exercise

Smoking Cessation

Alcohol Moderation

Source: [CDC](#)

Poor diet is a leading factor in 1/5 deaths

2016, %



Guardian graphic | Source: Institute for Health Metrics and Evaluation

Costs to Treat Chronic Diseases & Health Risks¹

86% of all health care spending is for one or more chronic medical conditions including mental health

Annual Chronic Diseases and Health Risk Behaviors Health Care Costs¹

Heart disease
& stroke
\$315.4 billion

Diabetes
\$245 billion

Age-related
cognitive
decline/
Alzheimer²
\$216 billion

Cancer
\$157 billion

Current US Seafood Consumption Guidelines: Eat Seafood Twice A Week

USDA/HHS: Dietary Guidelines for Americans



10 tips
Nutrition
Education Series

eat seafood twice a week

10 tips to help you eat more seafood

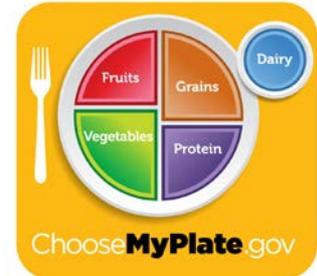
Twice a week, make seafood—fish and shellfish—the main protein food on your plate.* Seafood contains a range of nutrients, including healthy omega-3 fats. According to the 2010 Dietary Guidelines for Americans, eating about 8 ounces per week (less for young children) of a variety of seafood can help prevent heart disease.

- 1 eat a variety of seafood**
Include some that are higher in omega-3s and lower in mercury, such as salmon, trout, oysters, Atlantic and Pacific mackerel, herring, and sardines.
- 2 keep it lean and flavorful**
Try grilling, broiling, roasting, or baking—they don't add extra fat. Avoid breading or frying seafood and creamy sauces, which add calories and fat. Using spices or herbs, such as dill, chili powder, paprika, or cumin, and lemon or lime juice, can add flavor without adding salt.
- 3 shellfish counts too!**
Oysters, mussels, clams, and calamari (squid) all supply healthy omega-3s. Try mussels marinara, oyster stew, steamed clams, or pasta with calamari.
- 4 keep seafood on hand**
Canned seafood, such as canned salmon, tuna, or sardines, is quick and easy to use. Canned white tuna is higher in omega-3s, but canned "light" tuna is lower in mercury.
- 5 cook it safely**
Check oysters, mussels, and clams before cooking. If shells don't clamp shut when you tap them, throw them away. After cooking, also toss any that didn't open. This means that they may not be safe to eat. Cook shrimp, lobster, and scallops until they are opaque (milky white). Cook fish to 145°F, until it flakes with a fork.
- 6 get creative with seafood**
Think beyond the fish fillet. Try salmon patties, a shrimp stir-fry, grilled fish tacos, or clams with whole-wheat pasta. Add variety by trying a new fish such as grilled Atlantic or Pacific mackerel, herring on a salad, or oven-baked pollock.
- 7 put it on a salad or in a sandwich**
Top a salad with grilled scallops, shrimp, or crab in place of steak or chicken. Use canned tuna or salmon for sandwiches in place of deli meats, which are often higher in sodium.
- 8 shop smart**
Eating more seafood does not have to be expensive. Whiting, tilapia, sardines, canned tuna, and some frozen seafood are usually lower cost options. Check the local newspaper, online, and at the store for sales, coupons, and specials to help save money on seafood.
- 9 grow up healthy with seafood**
Omega-3 fats from seafood can help improve nervous system development in infants and children. Serve seafood to children twice a week in portions appropriate for their age and appetite. A variety of seafood lower in mercury should also be part of a healthy diet for women who are pregnant or breastfeeding.
- 10 know your seafood portions**
To get 8 ounces of seafood a week, use these as guides: A drained can of tuna is about 3 to 4 ounces, a salmon steak ranges from 4 to 6 ounces, and 1 small trout is about 3 ounces.

*This recommendation does not apply to vegetarians.

Go to www.ChooseMyPlate.gov for more information.

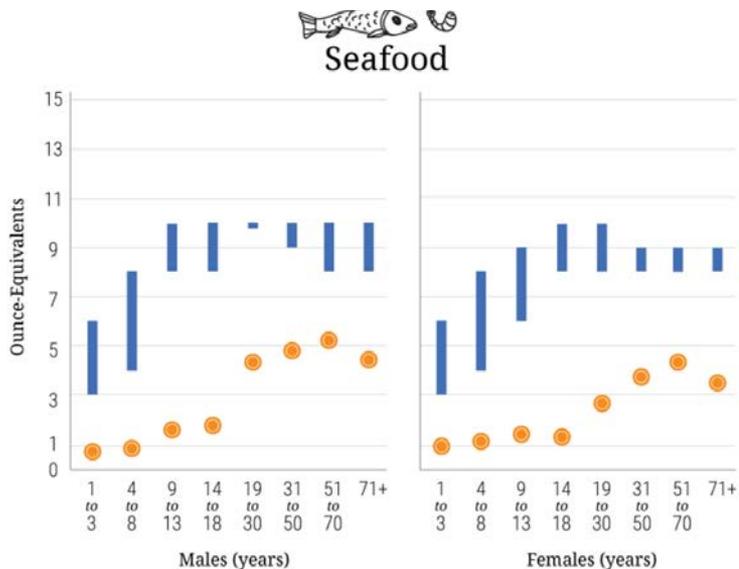
DQ TipSheet No. 15
December 2011
USDA is an equal opportunity
provider and employer.



DGA 2015-2020

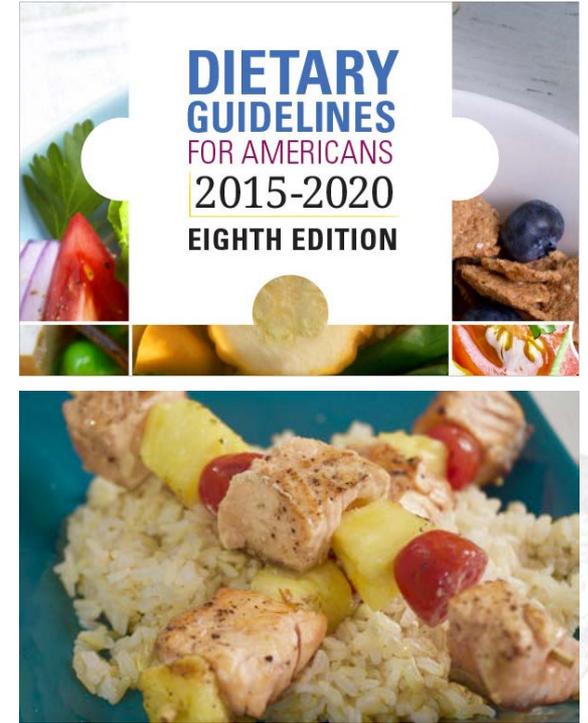
Seafood Consumption Gap

■ Recommended Weekly Intake Ranges | ● Average Weekly Intake



DGA 2015-2020 Seafood Advice

- For the general population, **consumption of about 8 ounces per week of a variety of seafood, which provide an average consumption of 250 mg per day of EPA and DHA**, is associated with reduced cardiac deaths among individuals with and without preexisting CVD.
- Strong evidence from mostly prospective cohort studies but also randomized controlled trials has shown that **eating patterns that include seafood are associated with reduced risk of CVD**, and moderate evidence indicates that these eating patterns are associated with reduced risk of obesity.



DGA 2015-2020 Seafood Advice (cont.)

- **Women who are pregnant or breastfeeding should consume at least 8 and up to 12 ounces of a variety of seafood per week**, from choices that are lower in methyl mercury.
- Consumption by women who are pregnant or breastfeeding of at least 8 ounces per week from seafood choices that are sources of DHA is associated with improved infant health outcomes.



Current US Seafood Consumption Risk Guidelines for Expecting Moms (Risk-based)

EPA/FDA: Fish Advice

Advice About Eating Fish

What Pregnant Women & Parents Should Know

Fish and other protein-rich foods have nutrients that can help your child's growth and development.

For women of childbearing age (about 16-49 years old), especially pregnant and breastfeeding women, and for parents and caregivers of young children.

- Eat 2 to 3 servings of fish a week from the "Best Choices" list OR 1 serving from the "Good Choices" list.
- Eat a variety of fish.
- Serve 1 to 2 servings of fish a week to children, starting at age 2.
- If you eat fish caught by family or friends, check for fish advisories. If there is no advisory, eat only one serving and no other fish that week.*

Use this chart!

You can use this chart to help you choose which fish to eat, and how often to eat them, based on their mercury levels. The "Best Choices" have the lowest levels of mercury.

What is a serving?

To find out, use the palm of your hand!



For an adult
4 ounces



For children,
ages 4 to 7
2 ounces

Best Choices EAT 2 TO 3 SERVINGS A WEEK			OR	Good Choices EAT 1 SERVING A WEEK		
Anchovy	Herring	Scallop	Bluefish	Monkfish	Tilefish (Atlantic Ocean)	
Atlantic croaker	Shad	Shrimp	Buffalofish	Rockfish	Tuna, albacore/white tuna, canned and fresh/frozen	
Atlantic mackerel	American and spiny	Skate	Carp	Sablefish	Tuna, yellowfin	
Black sea bass	Mullet	Smelt	Chilean sea bass/Patagonian toothfish	Sheepshead	Weakfish/seatrout	
Butterfish	Oyster	Sole	Groupers	Snapper	White croaker/Pacific croaker	
Catfish	Pacific chub mackerel	Squid	Hallibut	Spanish mackerel		
Clam	Perch, freshwater and ocean	Tilapia	Mahi mahi/dolphinfish	Striped bass (ocean)		
Cod	Pickering	Trout, freshwater				
Crab	Plaice	Tuna, canned light (includes skipjack)				
Crawfish	Pollock	Whitefish				
Flounder	Salmon	Whiting				
Haddock	Sardine					
Hake						
Choices to Avoid HIGHEST MERCURY LEVELS						
King mackerel	Shark	Tilefish (Gulf of Mexico)				
Marlin	Swordfish	Tuna, bigeye				
Orange roughy						

*Some fish caught by family and friends, such as larger carp, catfish, trout and perch, are more likely to have fish advisories due to mercury or other contaminants. State advisories will tell you how often you can safely eat those fish.

www.FDA.gov/fishadvice
www.EPA.gov/fishadvice



U.S. FOOD & DRUG ADMINISTRATION

THIS ADVICE REFERS TO FISH AND SHELLFISH COLLECTIVELY AS "FISH" / ADVICE UPDATED JANUARY 2017



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September 20, 2017 State of The Science

2017 EPA/FDA Fish Advice

- 90% of fish eaten in the U.S. is considered a “best” choice, low in mercury, and should be consumed 2 to 3 times per week.
- Eat 1 serving from the “Good Choices” list.
- Eat a variety of fish.
- Serve 1 to 2 servings of fish a week to children, starting at age 2.
- If you eat fish caught by family or friends, check for fish advisories. If there is no advisory, eat only one serving and no other fish that week.
- **FDA/EPA advisory contains a 1,000% Safety Factor**



Considering Seafood Nutrients

2014 FDA Net Effects Report¹

Quantitative Assessment of the Net Effects on Fetal Neurodevelopment from Eating Commercial Fish
(As Measured by IQ and also by Early Age Verbal Development in Children) Table V-10

Top consumed seafood species in the US (90% of what is consumed in US)	Upper safety limit for consumption before mercury risk per week
1. Shrimp	1,784 oz. (111.5 lbs.)
2. Salmon	853 oz. (53 lbs.)
3a. Canned Tuna – Skipjack (Light)	164 oz. (10 lbs.)
3b. Canned Tuna – Albacore (White)	56 oz. (3.5 lbs.)
5. Tilapia	1,509 oz. (94 lbs.)
6. Farmed Catfish, Pangasius, Swai, Basa	1,154 oz. (72 lbs.)
7. Pollock	530 oz. (33 lbs.)
8. Cod	223 oz. (14 lbs.)
9. Crab	311 oz. (19 lbs.)
10. Clams	853 oz. (53 lbs.)

Top 10 average =

- 46 pounds

Minimum

- 3.5 pounds (56 oz.)

...in one week...



Seafood Omega-3s & Brain Health

- Omega-3 DHA are main building blocks of neural cell structure.¹
 - A third of the brain's key functional units are made up of omega-3 fatty acids.²
- Nearly half of our eye's light detecting cell structure are made of omega-3 DHA.²
- Studies consistently show that omega-3 EPA improves depressive symptoms.³
- Omega-3 EPA is the key nutrient that balances blood flow and clotting, key to reduction of stroke risk.⁴



Seafood Omega-3s & Heart Health

- Epidemiological studies have consistently found negative associations between omega-3 intake and rates of chronic disease, particularly coronary heart disease.¹
- Prominent research studies have shown that eating seafood at least twice a week reduces the risk of dying from heart disease by 36%.²

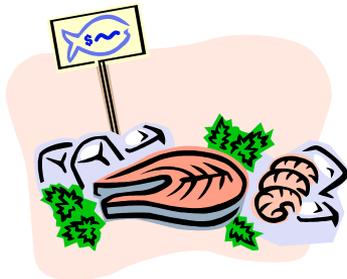


Current Seafood and Omega-3 Consumption Status

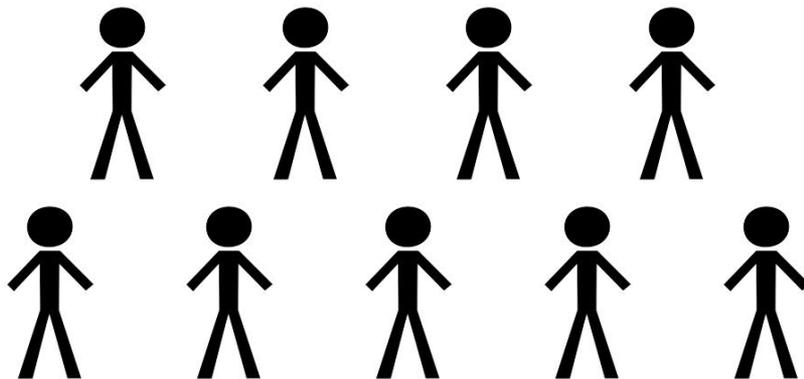
- In Western populations with low fish intake have omega-3 EPA + DHA levels of about 3%–5%¹
- Average American is consuming just 80-90mg omega-3s EPA + DHA per day.²
- The Physician's Health Study found that those who had omega-3 levels of 6-10% compared to someone with 2-4% had an 80-90% relative reduction in sudden cardiac death.³



1 in 10 Americans Follow DGA Recommendation to Eat Seafood 2x Week



Source: [USDA](#)



Biggest Barrier to Eating Seafood

Lack of **confidence** in knowing:
how to: select, buy, and eat
seafood.

Lack of Confidence Contributed By Risk Focus Communications

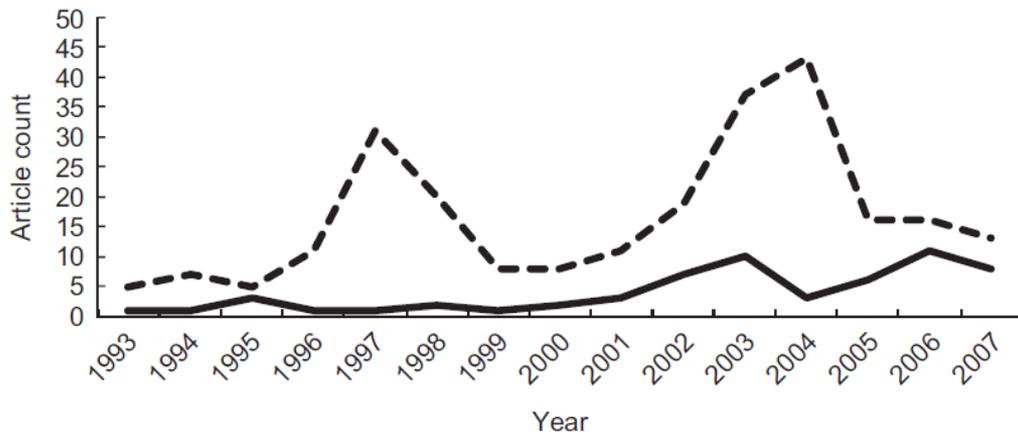
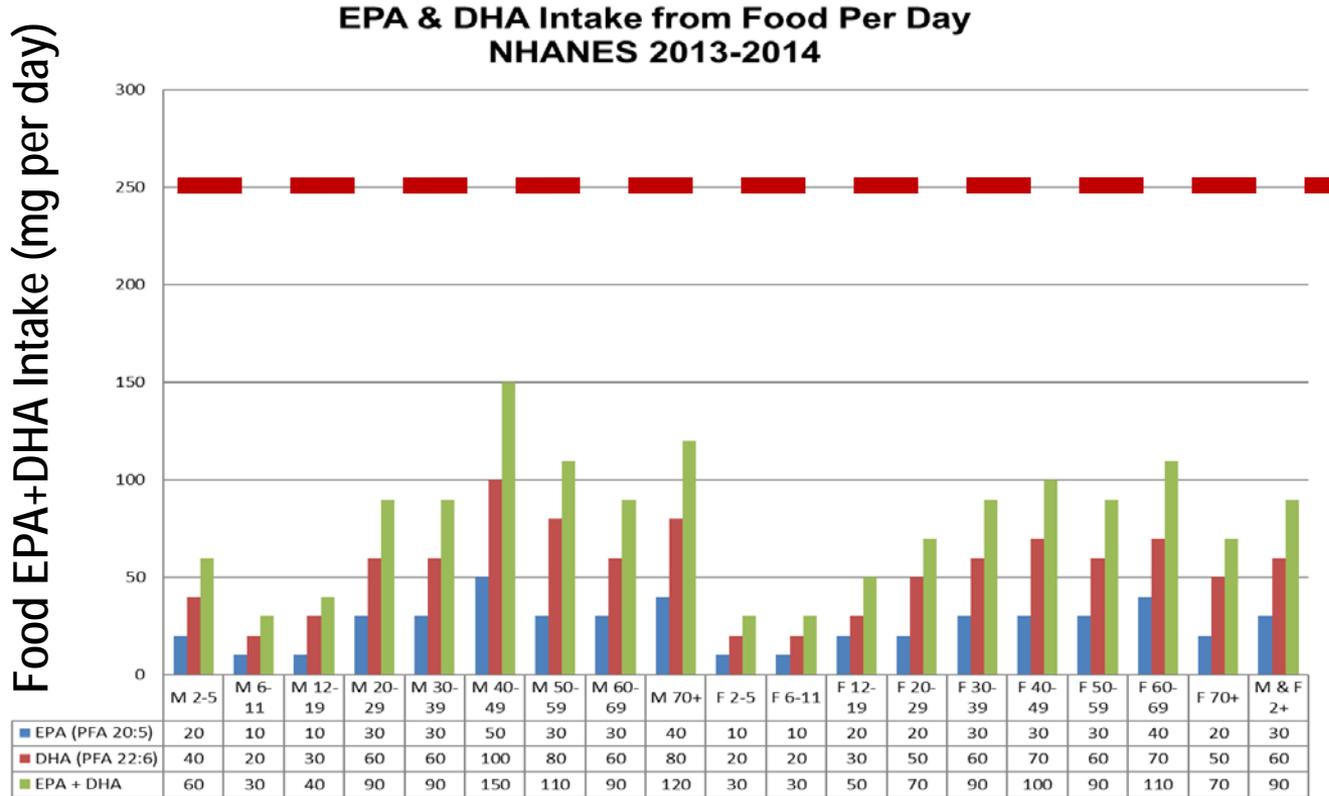


Fig. 2 Health benefits (—) and health risk (---) framing by year

2010 Johns Hopkins University study categorized media communications on seafood over 15 years and found:

- **80%** focused on health risk of eating seafood
- **20%** focused on health benefits of eating seafood

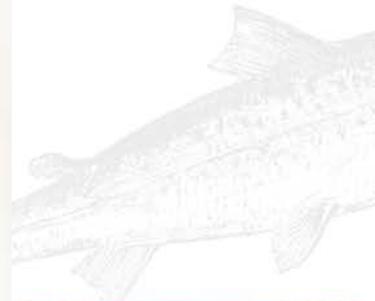
Omega-3 Deficiency in US¹





Public Health Implications

A 2017 Journal of American Medical Association study found that diet-related cardiometabolic deaths related to low intake of seafood omega-3 fats for 54,626 deaths¹



Clearing the Path from Science to Public Awareness and Urgency

- Our goal is that today will facilitate productive conversations about the essential role that seafood omega-3s play in the human diet found by expert groups worldwide, and how it is produced sustainably to support our future food security.
- Understand current communications outreach efforts in progress.
- Consider other avenues of support such as establishing a chronic disease dietary reference intake.¹



Wall Street Journal Pictures of the Day



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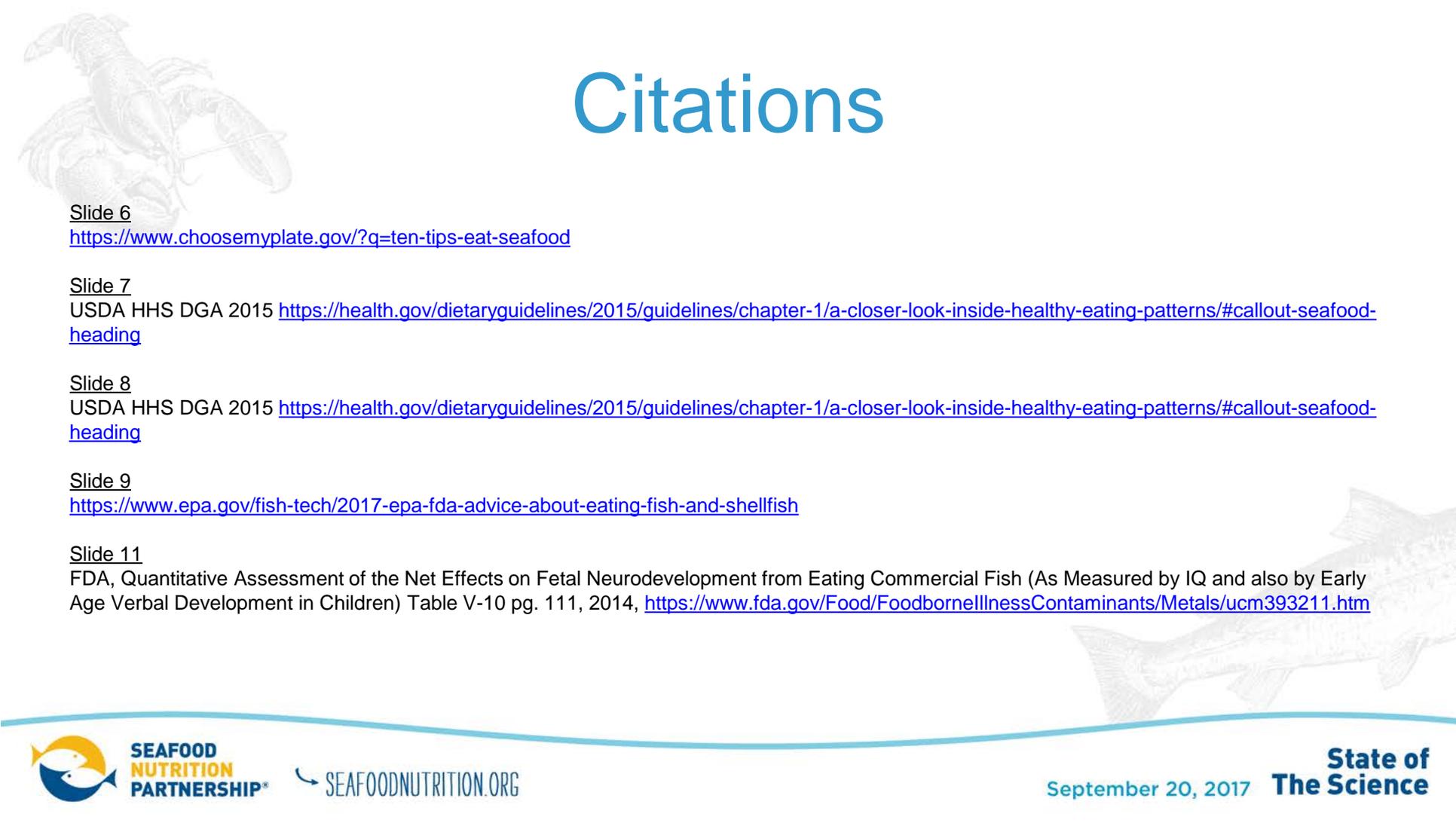
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