

-- Celebrating the 30-yr Production of Crabstick in the United States --

# Historical Review - the 30-yr Production of Crabstick in the United States



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Oregon State University

# **Alaska Pollock** – White Gold

25 Years - Producing Surimi in the United States -  
from the World's Largest Food Fishery



**Annual Avg TAC ~1.2 million M/T (2011: 1.365 million M/T)**

# Pacific Whiting

20 Years – the **second largest** fisheries for Surimi in the United States



**Annual Average TAC ~300,000 M/T: 2011 – 393,700 M/T**

# US Surimi Manufacturers

9/18 plants

## 1) Shore-side operation

	Location	Production Year	Parent Company	Produce Surimi Currently ?
<b>Alaska Pollock</b>				
Alaska Pacific Seafood	Kodiak, AK	1984	Marubeni	No
Arctic Alaska	Kodiak, AK	198?	Trident	YES
GLS/UniSea	Dutch Harbor, AK	1986	NISSUI	YES
Trident (Akutan)	Akutan, AK	1990	Trident	YES
Trident (Sandpoint)	Sandpoint, AK	1992	Trident	YES
Western Alaska Fisheries	Kodiak, AK	1988	Maruha-Nichiro	YES
Alyeska Seafoods	Dutch Harbor, AK	1985	Maruha-Nichiro	YES
Westward Seafoods	Dutch Harbor, AK	1991	Maruha-Nichiro	YES
Peter Pan (King Cove)	King Cove, AK	199?	Maruha-Nichiro	No
<b>Pacific Whiting</b>				
Pacific Surimi	Warrenton, OR	1995	Pacific Seafood	NO
Point Adams Packing	Hammond, OR	1992	California Shell	NO
Depoe Bay/Trident	Newport, OR	199?	Trident	YES
Inland Quick Freezer	Albany, OR	1992	Newport Shrimp	NO
Crystal Ocean Seafood	Astoria, OR	199?		NO
USP	Ucluelet, BC	1995		NO
CSP	Ucluelet, BC	1995		NO
Port Fish	Port Alberni, BC	1995		YES
<b>Silver Hake/Cod</b>				
SeaFreez	Nova Scotia	199?	Barry Group	NO

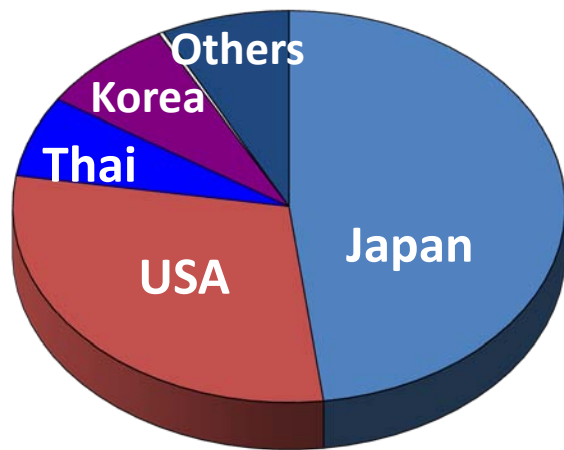
# US Surimi Manufacturers

## 2) At-Sea Operation

17/30 vessels

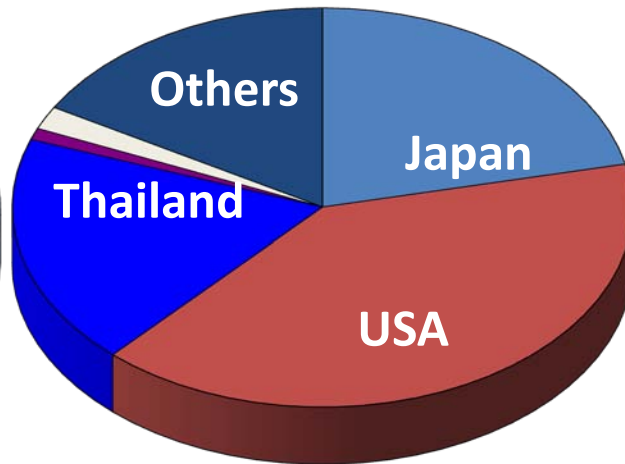
	Production	Parent	Produce Surimi
Vessels	Year	Company	Currently?
Arctic King	?	Arctic King	No
Arctic Storm	1988	Arctic Storm MGT	YES
Arctic Fjord	?	Arctic Storm MGT	YES
American Empress	1988	American Seafoods	NO
American Dynasty	1989	American Seafoods	YES
American Triumph	198?	American Seafoods	YES
Ocean Rover	1989	American Seafoods	YES
Northern Jaeger	1990	American Seafoods	YES
Northern Eagle	1988	American Seafoods	YES
Christina Ann	198?	American Seafoods	NO
Northern Hawk	1990	Coastal Village	YES
Seattle Enterprise	?	Trident Seafoods	YES
Kodiak Enterprise	?	Trident Seafoods	YES
Island Enterprise	?	Trident Seafoods	YES
Ocean Phoenix	?	Premier Pacific	YES
Excellence	1990	Supreme Alaska	YES
Morning Star	?	Morning Star	NO
Endurance	?	Alaska Trawl	NO
Alaska Ocean	?	Glacier Fish	YES
Northern Glacier	?	Glacier Fish	YES
Pacific Glacier	?	Glacier Fish	YES
Northern Victor	?	Icicle Seafoods	NO
Bering Trader	1988	?	NO
Saga Sea	?	Emeral Seafoods	NO
Heather Sea	?	Emeral Seafoods	NO
Arctic Enterprise		Arctic Alaska/Trident	No
US Enterprise		Arctic Alaska/Trident	No
Golden Alaska		Peter Pan	No
Star Bound		Aleutian Spary Fishier	YES
Highland Light			?

# Global Surimi Production by Country



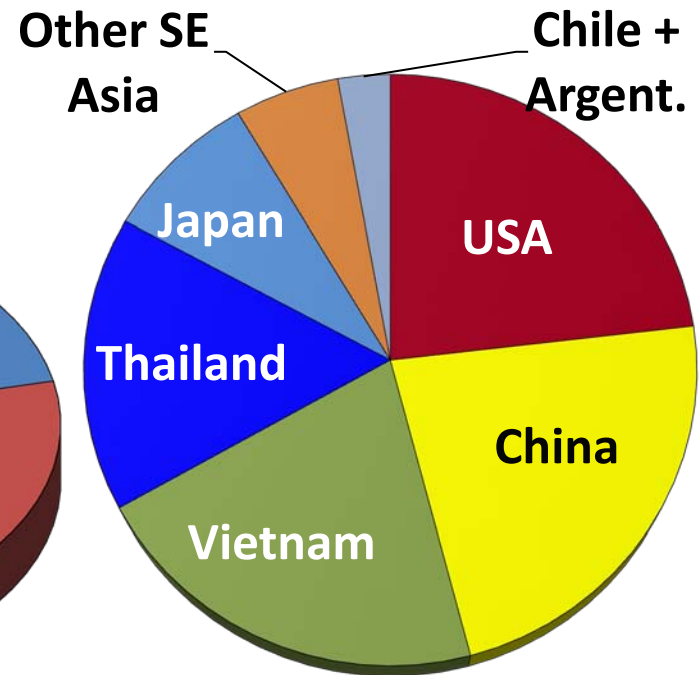
**1990**

**525,000 MT**



**2000**

**530,000 MT**



**2010**

**527,000 MT**

The 1<sup>st</sup> Surimi Industry Forum 2001

# Surimi Manufacturing Technique

- Process **developed by Japanese**
  - Essentially a relatively simple process adapted to an industrial scale
  - Use technology borrowed from other industries, e.g. potato and paper
- Efficiency **improved by American**
  - **Yield increase**
  - **Cooperation in machinery design** (scalper, Brown refiner, etc)

# Improved Yield

- 1984 – 1995: **12%** - 15%
- 1995 – 2005: 15% - 25%
- 2005 – 2010: 25% - **30%**

**12%** → **30%**

**It is *significant* improvement!**



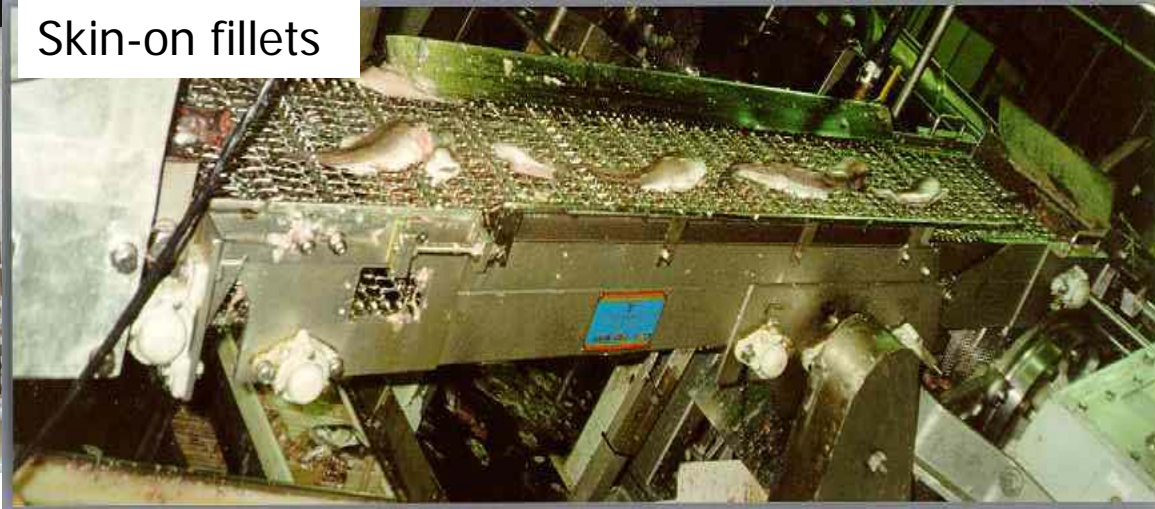
# Improved Yield by Fish Cuts

□ Skinless fillets → Skin-on fillets →  
**Butterfly fillets**

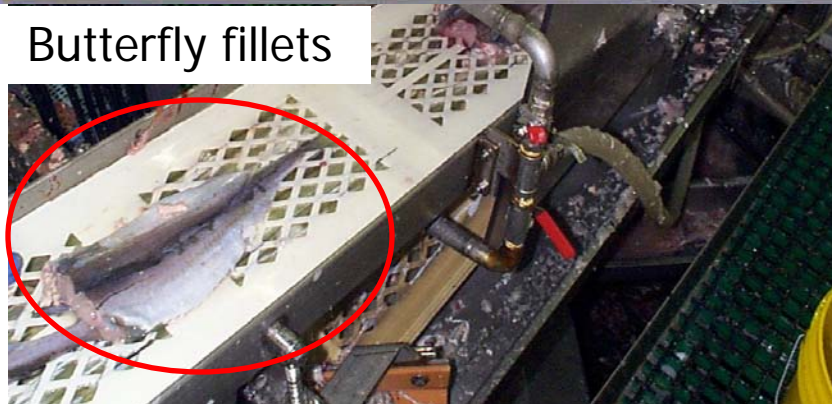
Skinless fillets



Skin-on fillets



Butterfly fillets



**Fish cuts**

**before Deboning**

# Improved Yield by efficient washing

□ **Tighter screen and less water used in washing**

– **20-25 liters water/ 1 kg**

**surimi production early days**

– **1-2 liters/ 1 kg vs 5-10 liters/ 1 kg**

# Improved Yield by Decanter

## □ Decanter/Centrifuge

- Recover possibly all insoluble particulates

- The most significant role in yield increase



# Improved Yield by Better Cut

## □ Efficient machinery for better cut

- **Scalp cuts** (American Seafoods)
- **Toyo V-cuts** (developed by UniSea & Toyo)
- **Scalper/chinner** (DK Engineering)
- **Scalper** (Kami Steel)

# Cuts of Meat Used in Surimi Production



Frame

Flank

Bellyflap

Scalp

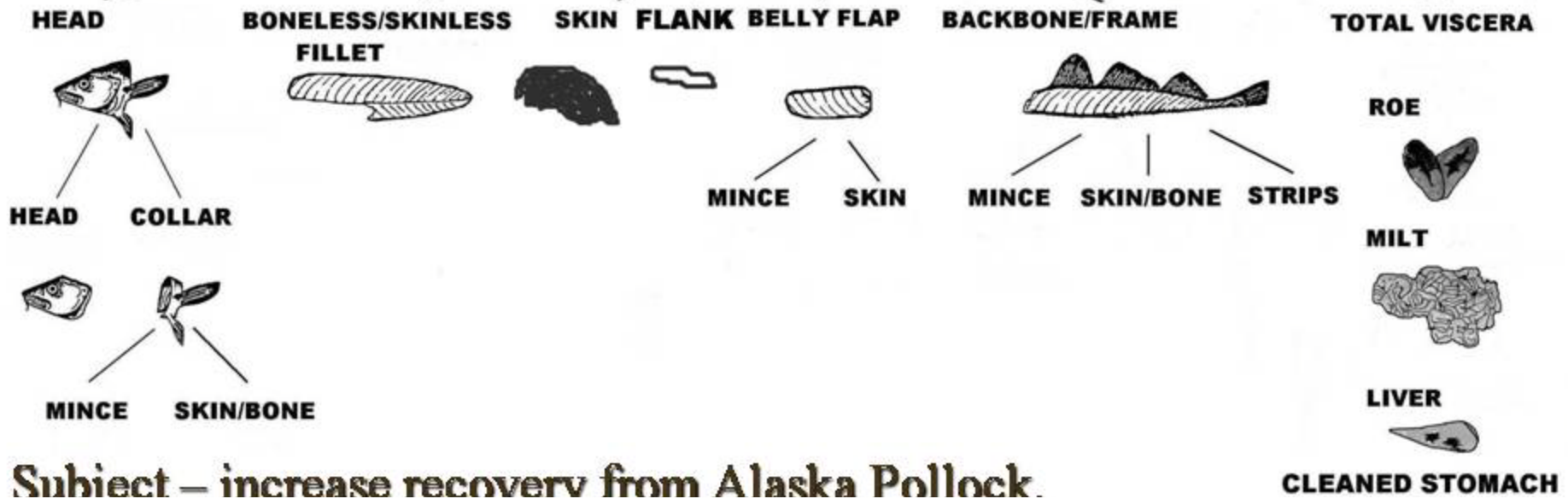
Fillet

# Improved Yield by:

## □ Byproducts recovery

- **Skin** (used for gelatin production)
- **Liver** for oil used in power and steam generation.
- **Solids** from waste streams collected and added to **fish meal**.
- **Stomachs** (changran)

# Recovery from Alaska Pollock



Subject – increase recovery from Alaska Pollock.

**We now utilize almost every part of pollock –**

**Maximum Utilization**

Cost / Benefit – Value of mince, surimi, and byproducts.

ALL OTHER

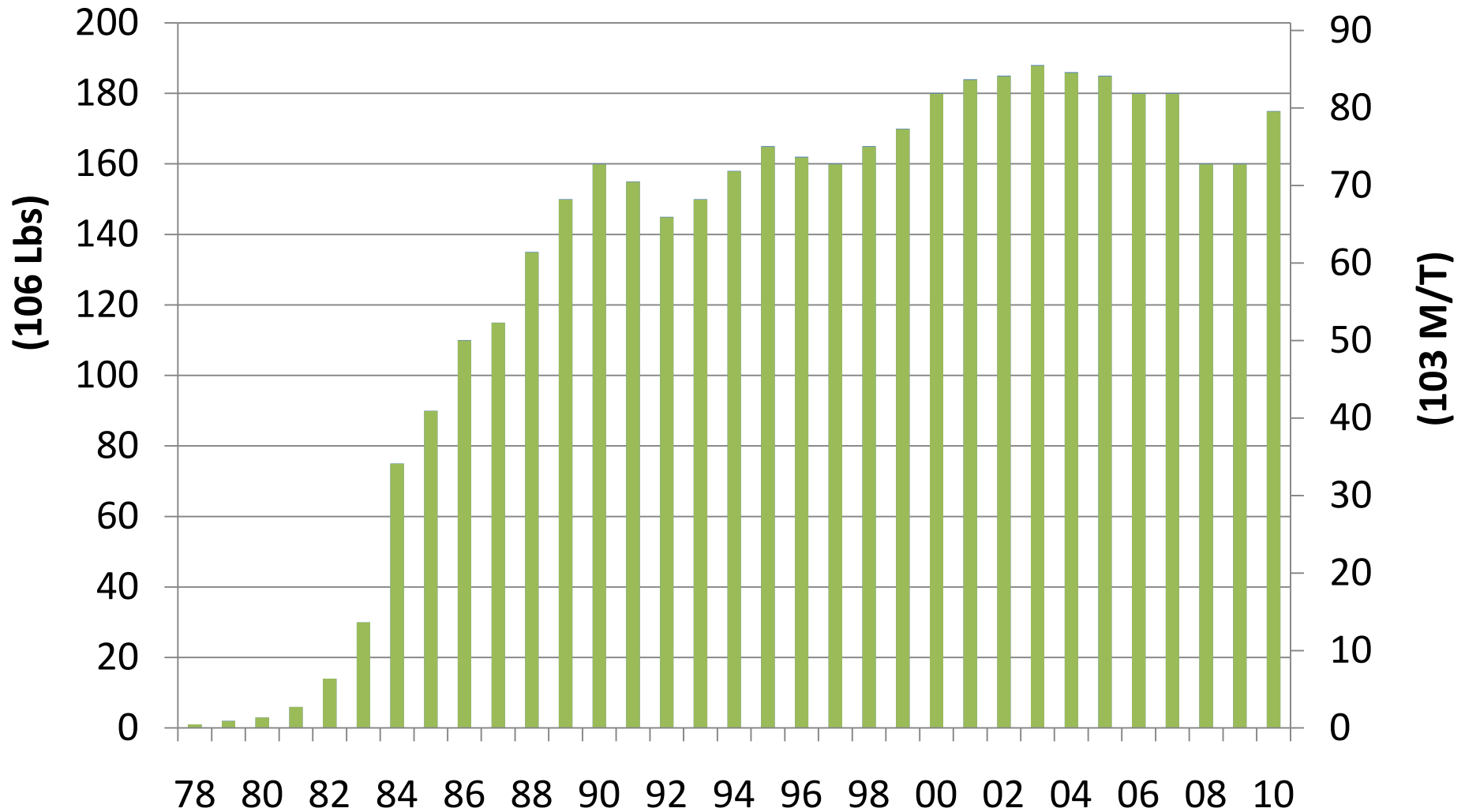


# CRABSTICK

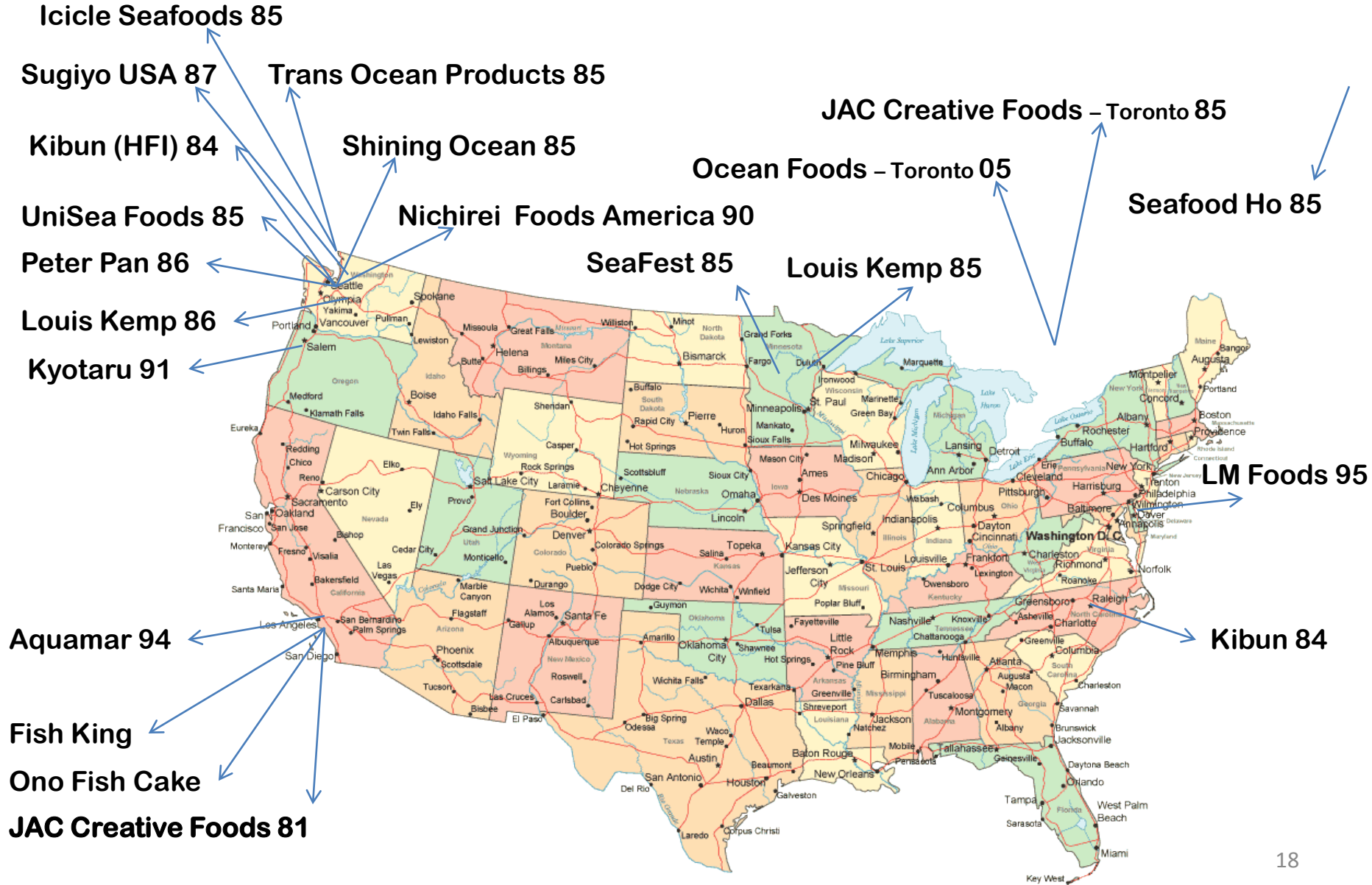


# Market Development in USA

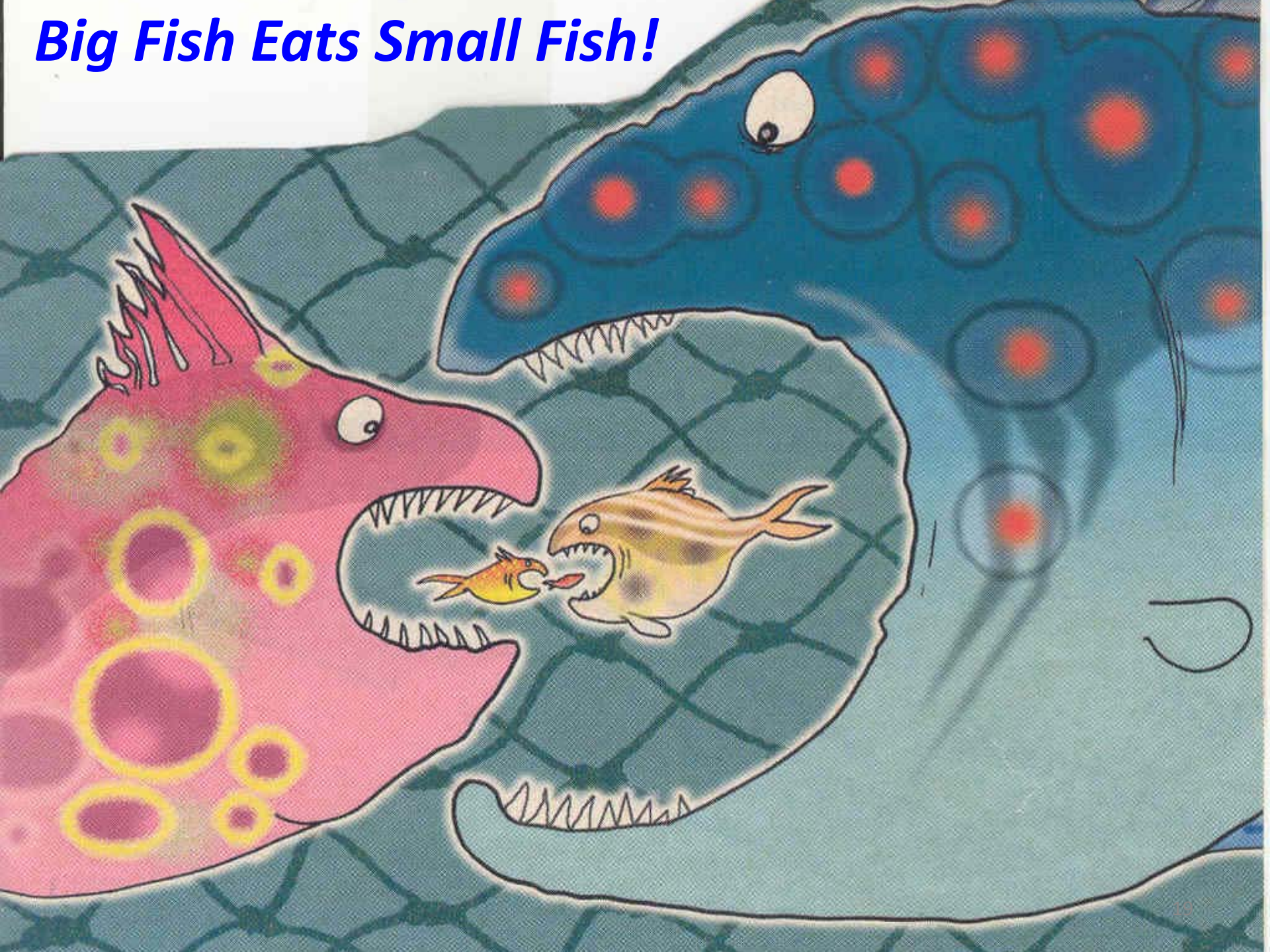
## US Surimi Seafood Production



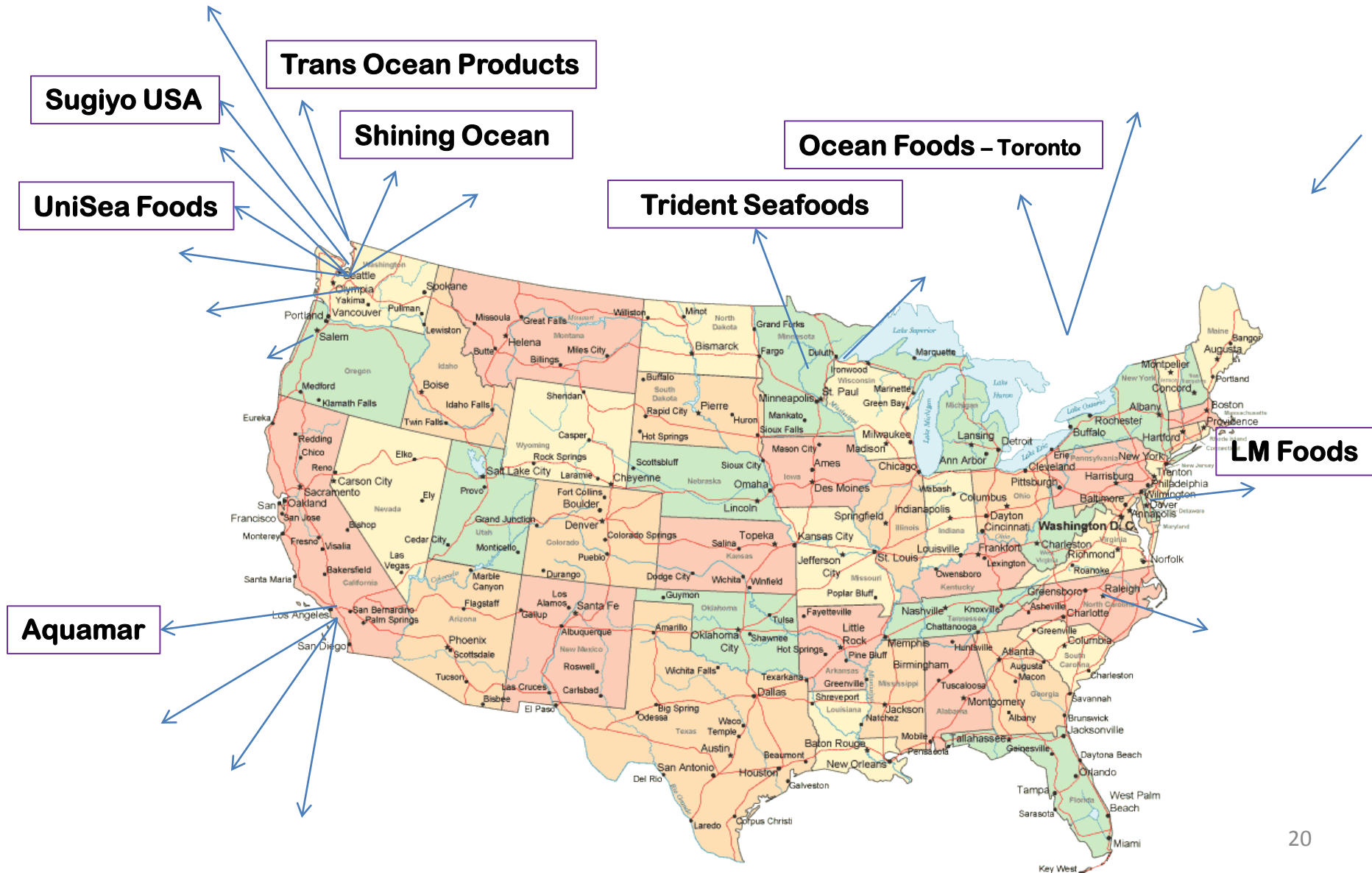
# 21 Processing Plants were established in N America



# ***Big Fish Eats Small Fish!***



# 8 Processing Plants currently in N America



**LOUIS KEMP**  
SINCE 1958

HEALTHY

Make your Seafood Department  
Healthier than ever.



LOUIS KEMP IS DRIVING HEALTHY GROWTH IN THE SURIMI SEGMENT!

• LOUIS KEMP YEAR TO DATE VOLUME IS UP 54% VERSUS YAG!

• ONE OF THE TOP 10 FOOD TRENDS FOR 2010 IS HEALTHY. MORE THAN 1/3 OF SHOPPERS SAID THEIR DESIRE TO REDUCE THE RISK OF DEVELOPING HEALTHY CONDITIONS HAD A LOT OF INFLUENCE ON THEIR FOOD PURCHASING DECISIONS.\*\*



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ALASKA STARBUCKS

A brand of Alaska Pollock & Crab

Quick & Easy Recipes  
(see back panel)

RESEALABLE ZIPPER

TEAR HERE TO OPEN

transOCEAN  
Products

Fully Cooked  
Ready to Eat

# Crab Classic

Flake Style

Crab-flavored seafood, made from surimi, a fully cooked fish protein



HEART HEALTHY  
Excellent Source of OMEGA-3 FATS & FIBER  
Fat Free • 0g Trans Fat • Low Cholesterol

NET WT. 8 OZ. (227g) MUST BE KEPT REFRIGERATED TO MAINTAIN SAFETY

American Heart Association  
Make American Heart Association heart-healthy choices for yourself and for your loved ones for healthy people over age 2.  
heart.org

Another great idea from Shining Ocean. Omega-3 Fatty Acids Added.

# CRAB SMART™

A smart, low fat way to add omega 3 oils & calcium to your diet.

Premium Surimi Seafood Flakes

- Omega 3 Oils - 250 mg per Serving
- High Calcium
- Fully Cooked
- Ready to Eat

The Highest Quality Blend of North Pacific White Fish and Snow Crab Meat

NET WT. 12 OZ (340g)



PRODUCT OF USA

KEEP REFRIGERATED OR FROZEN



- Omega-3 Fatty Acids (250mg per serving)

## Classic Bay flakes

with REAL CRABMEAT

Trans Fat 0g

No MSG  
Fully Cooked  
Ready to Eat  
No Preservatives

KEEP REFRIGERATED AT 32°-38°F  
NET WT. 16 oz. (1 LB.) 454g

Nutrition Facts	
Serving Size: 1/2 cup (85g)	
Amount Per Serving	
% Daily Value*	
Total Fat	1.5g
Saturated Fat	0g
Cholesterol	5mg
Sodium	740mg
Total Carbohydrate	16g
Dietary Fiber	0g
Sugars	6g
Protein	5g

PRODUCED BY LB FOODS, CAFFREY, NJ, USA  
LIDER (CN 40488) HACCP APPROVED

## Ocean Food

Sea-Deli+

IMITATION CRABMEAT

NET WT. 16 oz. (1 LB.) 454g

# SUGIYO BRAND®

## Lobster Sensations

Like a Blend of real Lobster Meat and Fish with Natural and Artificial Lobster Flavoring

NET WT. 16 oz. (1 LB.) 454g

## Aquamar

Imitation Crab Meat

Alaskan Pollock with Natural and Artificial Flavors

NET WT. 16 oz. (1 LB.) 454g

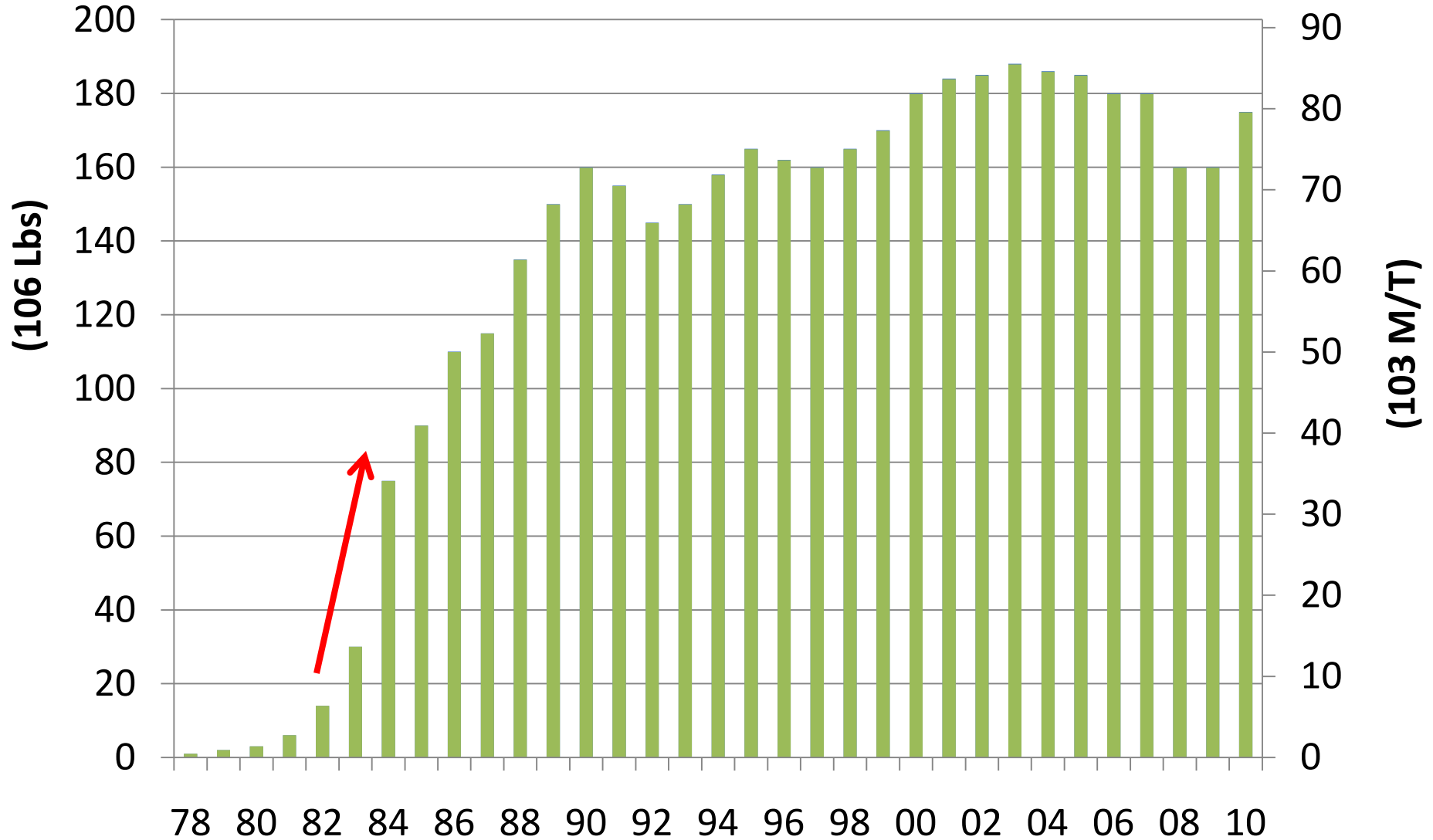
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Product of USA

How was **the US Surimi**  
**Seafood Market** developed?

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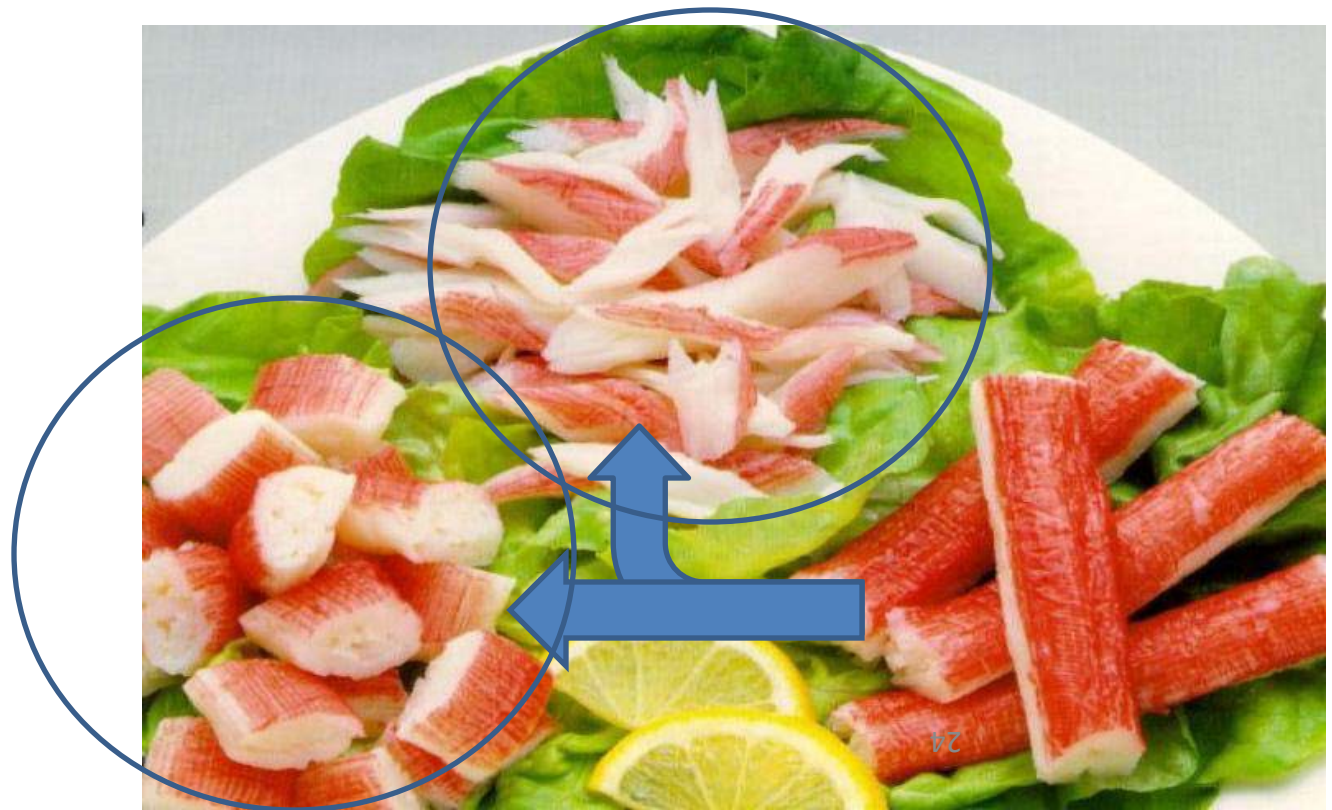
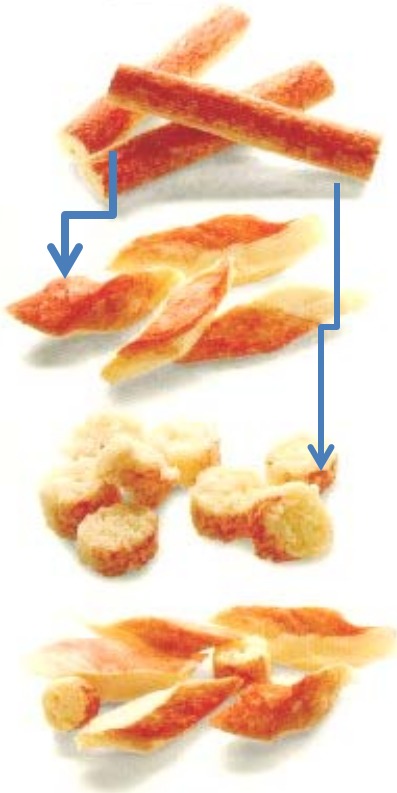
## US Surimi Seafood Production



# The largest consumption increase

7,000 M/T (1982) → 35,000 M/T (1984)

The largest consumption increase was brought by a **simple**, but consumer friendly, **product forms**:

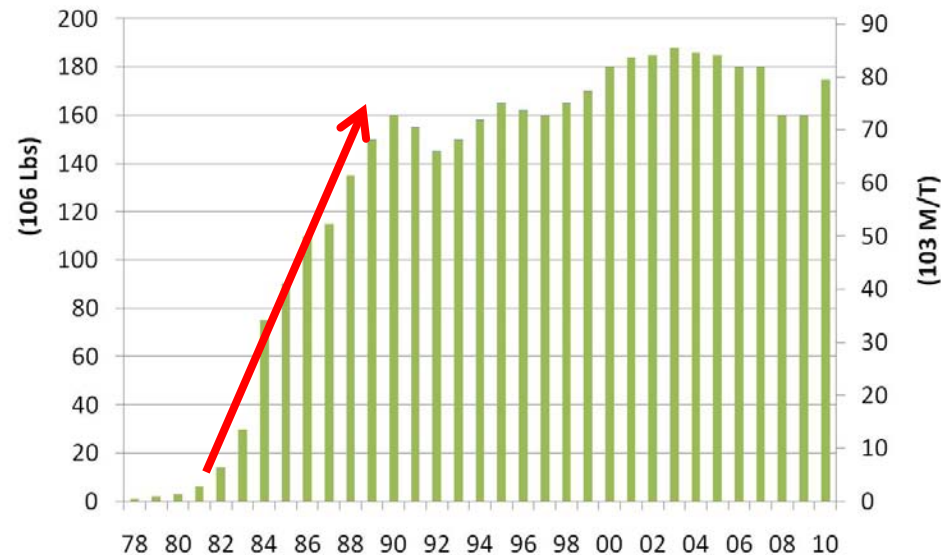




# 1981 – 1990 Rapid Growth

- The first crabstick plant (**JAC Creative Foods**) in 1981.
- **Eight plants** were built in 1985.
- **SA or FA** grade **Alaska pollock surimi** were used at **60-65%**.
- **60 days shelf life** for chilled products (**4°C**)
- **Strict pasteurization** (Cooking to **85C** internal temperature for **15 min**)
- **Water phase salt: 2.4%**

US Surimi Seafood Production

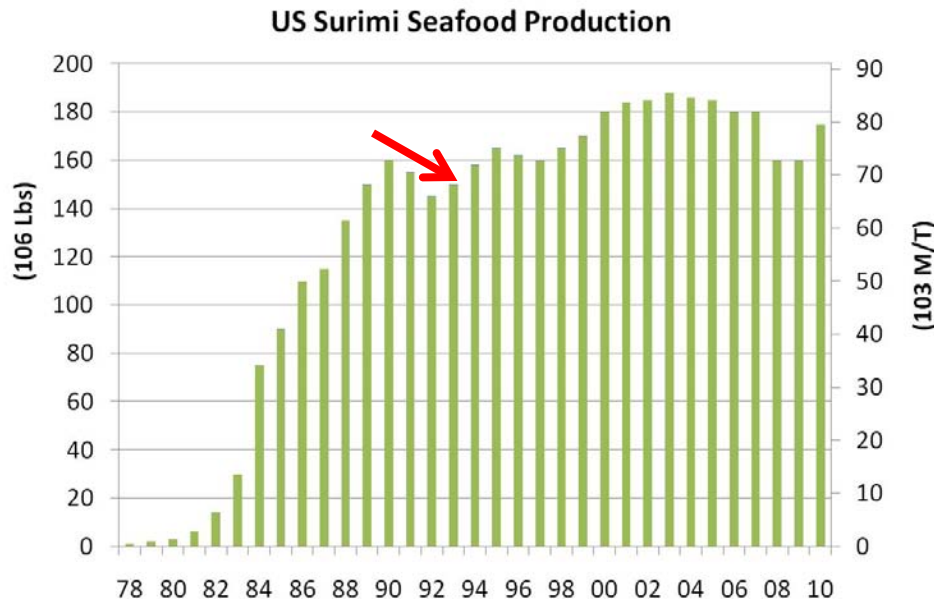


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# 1991: Consumption **decreased!**

73,000 M/T (1990)  66,000 M/T (1992)

The first surimi price crisis (A grade pollock):



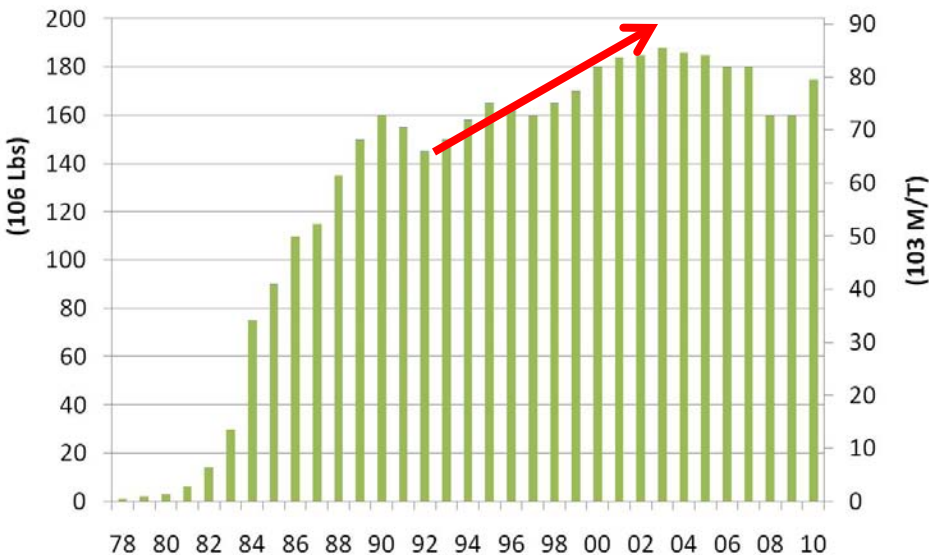
Jan 1991: \$1.65/kg  
July 1991: \$3.50/kg  
Fall 1991: \$5.95/kg

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# 1992 – 2003 Slow Growth

- Plants are consolidated.
- **Two new plants** were built in 1994-1995.
- **Surimi: from Pollock only to Pollock and Whiting**
- **Pacific whiting surimi commercialized in 1991-1992.**
- **1991 Crisis: Surimi reduction from 60-65% to 35-40%.**
- **90 days shelf life** for chilled products (4°C)

US Surimi Seafood Production



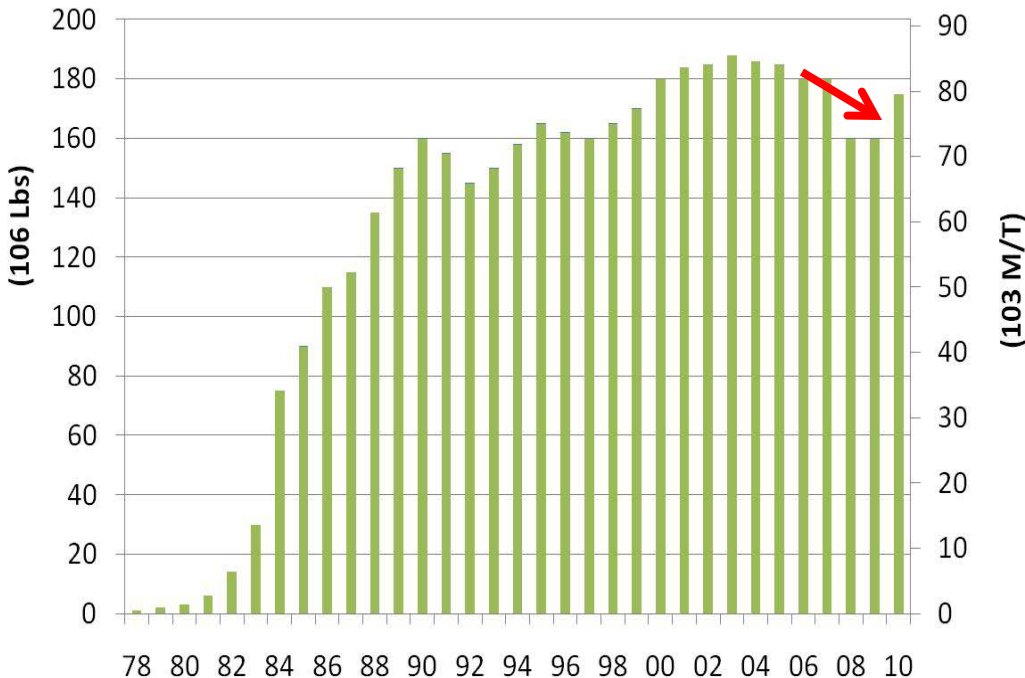
-- Celebrating the 30-yr Production of Crabstick in the United States --

## 2008: Consumption **decreased!**

82,000 M/T (2007) → 73,000 M/T (2008)

The second surimi price crisis (A grade pollock):

US Surimi Seafood Production



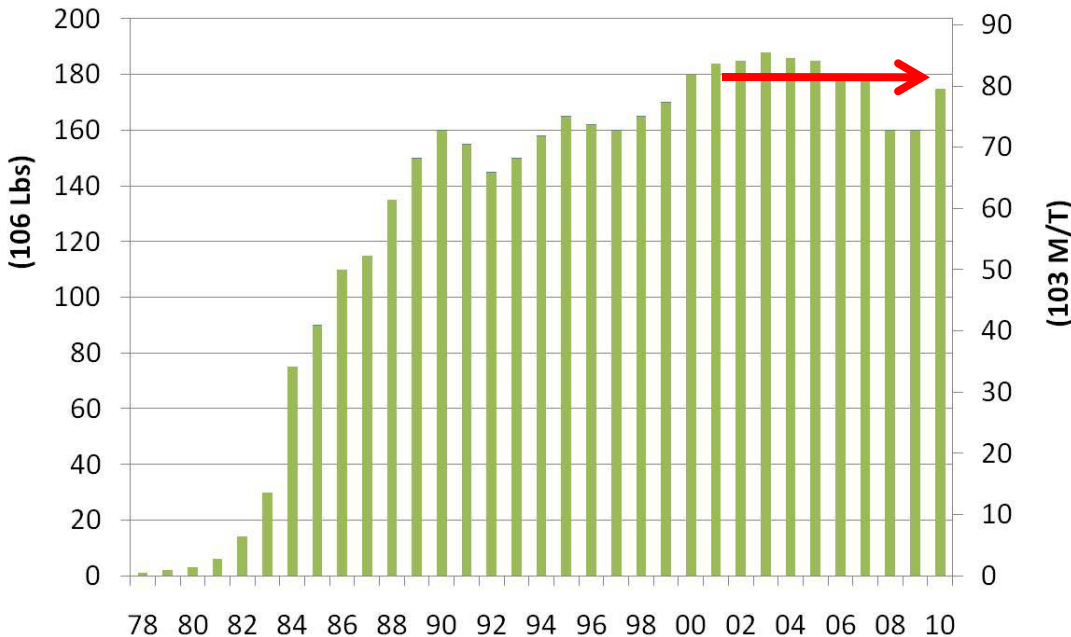
Fall 2007: \$3.85/kg  
Jan 2008: \$4.40/kg  
July 2008: \$5.72/kg  
Fall 2009: \$5.28/kg

-- Celebrating the 30-yr Production of Crabstick in the United States --

# 2000 – 2009 Matured Market

- Consolidation: **only 8 processing plants**
- **More Pacific whiting surimi is used.**

US Surimi Seafood Production



**Low Quality and Low Price Imports**

**“Imitation” label was removed in 2006.**

# Working for Consumers

- **Imitation Crabmeat is now a history!**

**Imitation** (Crabmeat) had *bad reputation!*

- Since its first importation in late 1970s
- Negative impression
- Approved in Nov 2006: Now it has a new name:

**Crab-flavored seafood, made with surimi, a fully cooked fish protein**

- NFI , GAPP, & US Industry
- **Disjunctive label**
  - The use of surimi from multiple species was the problem
  - **Fish proteins** (Alaska pollock, Pacific whiting, or cod)

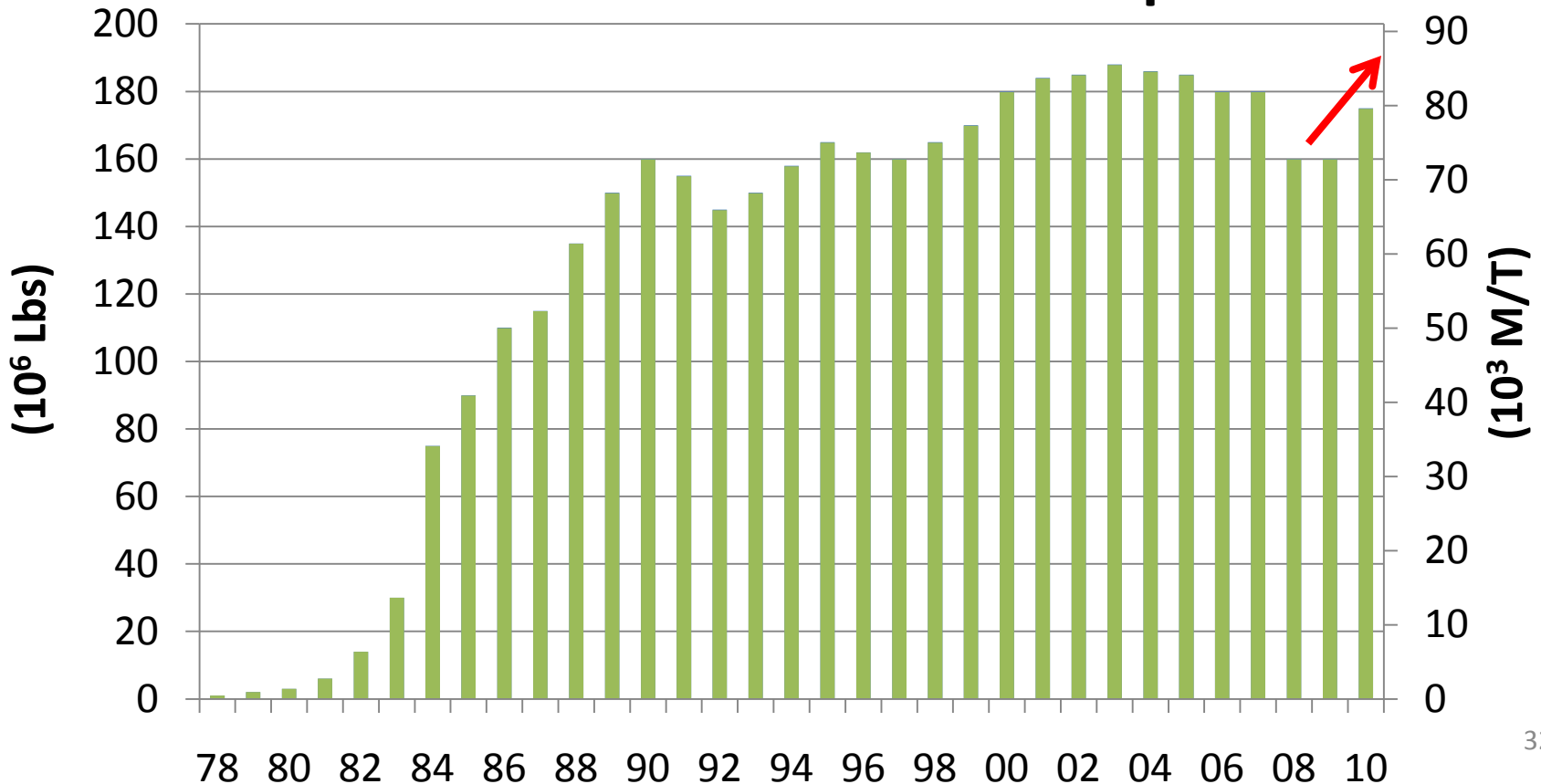
# Consumer Friendly

- **Health-claimed crabstick** keeps retail market strong!
  - Downturn in 2008 (due to surimi price crisis)
  - Overall market reduced by 15-20% (2007 – 2009)
  - **Retail stayed strong (up by 2%)** due to:
    - **Health Claim**
    - **Removal of imitation label**

# 2010 – Matured, but...

- Retail is strong with Omega-3 addition
- No “Imitation” label is *positive* in the market

## US Surimi Seafood Consumption





# -- Celebrating the 30-yr Production of Crabstick in the United States -



Always affordable  
now **HEALTHY**





Alaska Pollock & Crab



Quick & Easy Recipes (see back panel)



A Blend of Alaska Pollock & Crab



Quick & Easy Recipes (see back panel)

RESEALABLE ZIPPER

TEAR HERE TO OPEN

-- Celebrating the 30-yr Production of Crabstick in the United States --



Fully Cooked Ready to Eat



Fully Cooked Ready to Eat

# Crab Classic

## Chunk Style

Crab-flavored seafood, made from surimi, a fully cooked fish protein

# Crab Classic

## Leg Style

Crab-flavored seafood, made from surimi, a fully cooked fish protein



**HEART HEALTHY** Excellent Source of OMEGA-3 EPA & DHA  
Fat Free • 0g Trans Fat • Low Cholesterol



NET WT. 8 OZ. (227g)

MUST BE KEPT REFRIGERATED TO MAINTAIN SAFETY

**American Heart Association**  
Meets American Heart Association's food criteria for saturated fat and cholesterol for healthy people over age 2.  
heartthecooking.org



**HEART HEALTHY** Excellent Source of OMEGA-3 EPA & DHA  
Fat Free • 0g Trans Fat • Low Cholesterol



2554

NET WT. 8 OZ. (227g)

MUST BE KEPT REFRIGERATED TO MAINTAIN SAFETY

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Meets American Heart Association's food criteria for saturated fat and cholesterol for healthy people over age 2.  
heartthecooking.org

# (Omega-3 fortified)

The national branded Healthy Surimi market is growing 158% year over year.  
Shining Ocean has 69% market share\*.

**-- Celebrating the 30-yr Production of Crabstick in the United States --**

**Kanimi**  
**CRAB SMART™ Natural**  
CRAB FLAVORED SEAFOOD FLAKES  
MADE WITH SURIMI, A FULLY COOKED FISH PROTEIN

**HEART HEALTHY**

- COLORED BY ANTI-OXIDANT LYCOPENE (0.6mg/SERV)
- NO PHOSPHATES
- HIGH CALCIUM
- LOW FAT
- 0 TRANS FAT

**5 min. Meal Prep**

**OMEGA-3 FISH OIL**  
400mg/SERVING  
† SEE BACK FOR MORE INFO

**WILD CAUGHT**  
SUSTAINABLE ALASKAN POLLOCK WITH SNOW CRABMEAT ADDED

**Shining Ocean**  
**Sumner, WA**

-- Celebrating the 30-yr Production of Crabstick in the United States --



**King & Prince Seafood  
(Redmond, WA)**

-- Celebrating the 30-yr Production of Crabstick in the United States --



## SEAFOOD & CRAB

Blend of seafood and crab mixed with light mayonnaise.



Approximately **3,000 M/T**  
a year used by Subway

-- Celebrating the 30-yr Production of Crabstick in the United States --



The largest usage of crabstick in the world!

## SEAFOOD & CRAB

Blend of seafood and crab mixed with light mayonnaise.



Approximately **3,000 M/T** a year used by Subway

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# California Rolls – It's **American!**



Make your Seafood Department  
Healthier than ever.



LOUIS KEMP IS DRIVING HEALTHY GROWTH IN THE SURIMI SEGMENT!

• LOUIS KEMP YEAR TO DATE VOLUME IS UP 54% VERSUS YAG!

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**ALASKA SEASON**  
A brand of **Alaska Pollock & Crab**

RESEALABLE ZIPPER YEAR HERE TO OPEN

**transOCEAN** Products Fully Cooked Ready to Eat

# Crab Classic

Flake Style

Crab-flavored seafood, made from surimi, a fully cooked fish protein

**HEART HEALTHY** Excellent Source of **OMEGA-3 FATS & FIBER**  
Fat Free • 0g Trans Fat • Low Cholesterol

NET WT. 8 OZ. (227g) MUST BE KEPT REFRIGERATED TO MAINTAIN SAFETY

**American Heart Association**  
Meats American Heart Association Seal criteria for substituted for your enjoyment for healthy people over age 2.

Another great idea from Shining Ocean. Omega-3 Fatty Acids Added.

**Kāhimi K** **CRAB SMART** <sup>TM</sup> Heart Healthy

A smart, low fat way to add **omega 3 oils & calcium** to your diet.

**Premium Surimi Seafood Flakes**

- Omega 3 Oils - 250 mg per Serving
- High Calcium
- Fully Cooked
- Ready to Eat

The Highest Quality Blend of North Pacific White Fish and Snow Crab Meat

NET WT. 12 OZ (340g) PRODUCT OF USA KEEP REFRIGERATED OR FROZEN

• **Omega-3 Fatty Acids** (250mg per serving)

**Lobster Sensations**

Like a Blend of real Lobster Meat and Fish with Natural and Artificial Lobster Flavoring

NET WT. 12 OZ (340g)

# Classic Bay flakes

with REAL CRABMEAT

Trans Fat 0g

No MSG Fully Cooked Ready to Eat No Preservatives

KEEP REFRIGERATED AT 32°-38°F NET WT. 16 oz. (1 LB.) 454g

**Sea-Deli**

**Nutrition Facts**  
Serving Size: 1/2 cup (80g)  
Amount per Serving: Calories 100  
Total Fat 1.5g, Saturated Fat 0g, Cholesterol 8mg, Sodium 740mg, Total Carbohydrate 16g, Dietary Fiber 0g, Sugars 5g, Protein 5g

PRODUCED BY LB FOODS, CAVEYVILLE, PA 15765, U.S.A. LIDER/CPN 404888/ HXCCP APPROVED

**Ocean Food**

**Sea-Deli**

**Ocean Deli** Imitation Crabmeat

Low in Fat Low in Cholesterol

# SUGIYO

BRAND

No MSG Added • Low Fat • No Preservatives

# Aquamar

Imitation Crab Meat

Alaskan Pollock with Natural and Artificial Flavors

NET WT. 1.5 lbs. (680g)

**Nutrition Facts**  
Serving Size: 1/2 cup (80g)  
Amount per Serving: Calories 100  
Total Fat 1.5g, Saturated Fat 0g, Cholesterol 8mg, Sodium 740mg, Total Carbohydrate 16g, Dietary Fiber 0g, Sugars 5g, Protein 5g

KEEP REFRIGERATED