



Lýsisafurðaiðnaðurinn

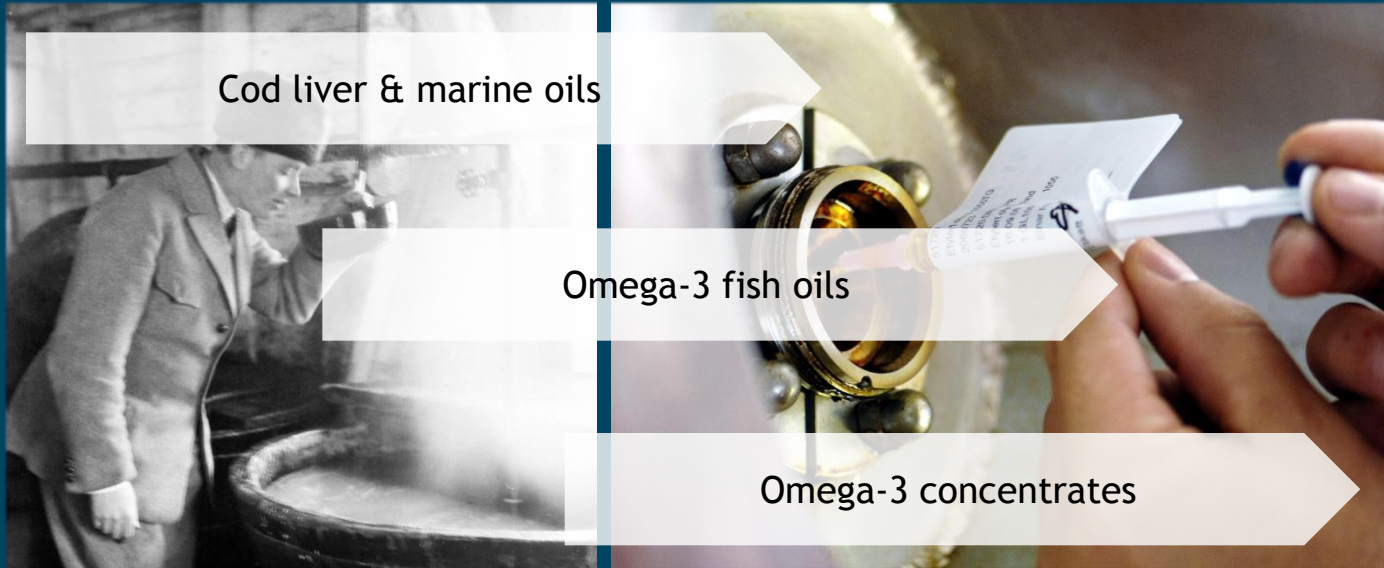
Sjávarútvegsráðstefnan 2013

Grand Hotel Reykjavik 21-22 nóvember 2013

More than 170 years of commitment to marine oil health benefits

1838 - JC Martens

1999 – Pronova Biocare



2007 – Epax AS

A Great Fit for Future Growth

FMC

+



FMC reinforces Epax' commitment to Purity, Quality and Innovation



One supply chain, two end markets



Epax Condition Specific Formulations



**Healthy
Inflammation
Response**
EPAX 4020 TG/EE



Joint Health
EPAX 4510 TG



**Cardiovascular
Health**
EPAX 5500 EE
EPAX 6000 TG/EE



**Mood and
Mind Health**
EPAX 6015 TG/EE

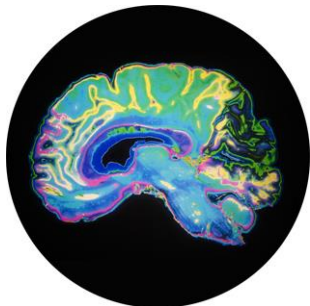
EPAX 1050 TG (high DHA) based Condition Specific Formulations



**Pre- and
Postnatal Health**
EPAX 1050 TG



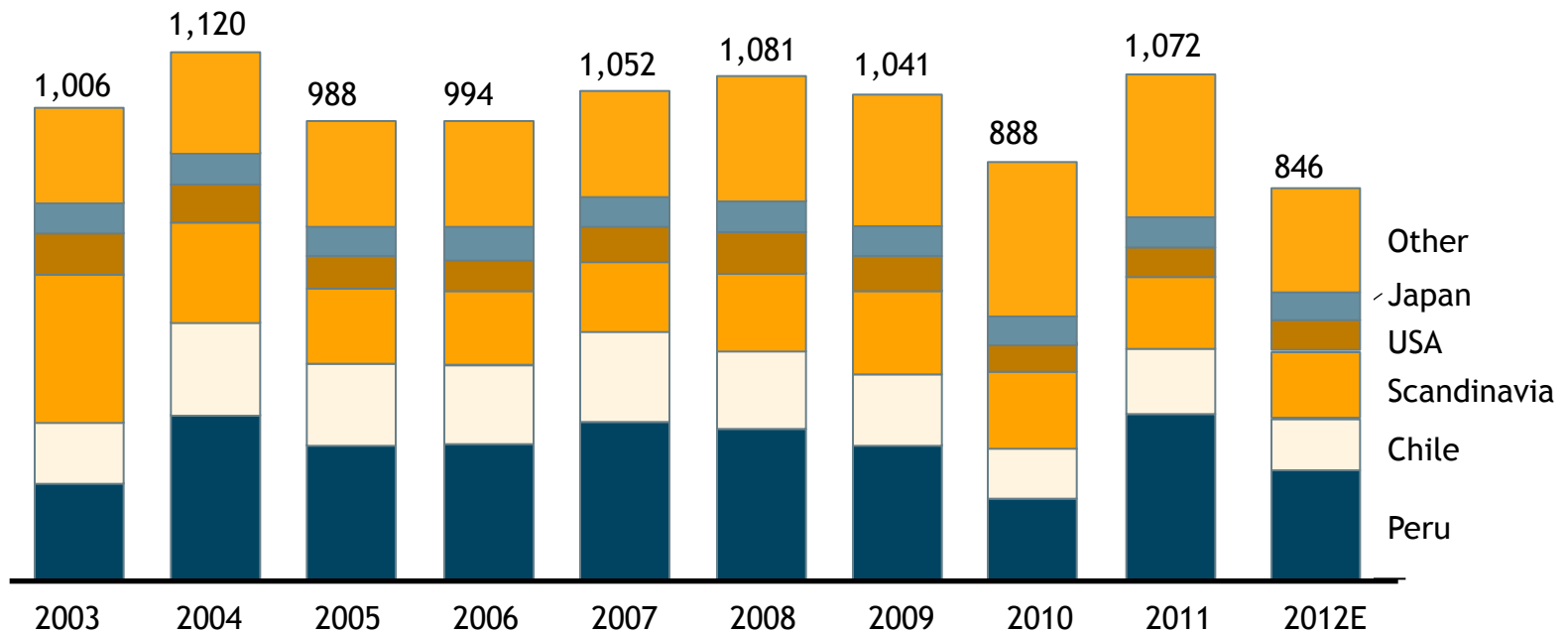
Eye Health
EPAX 1050 TG



Cognitive Health
EPAX 1050 TG

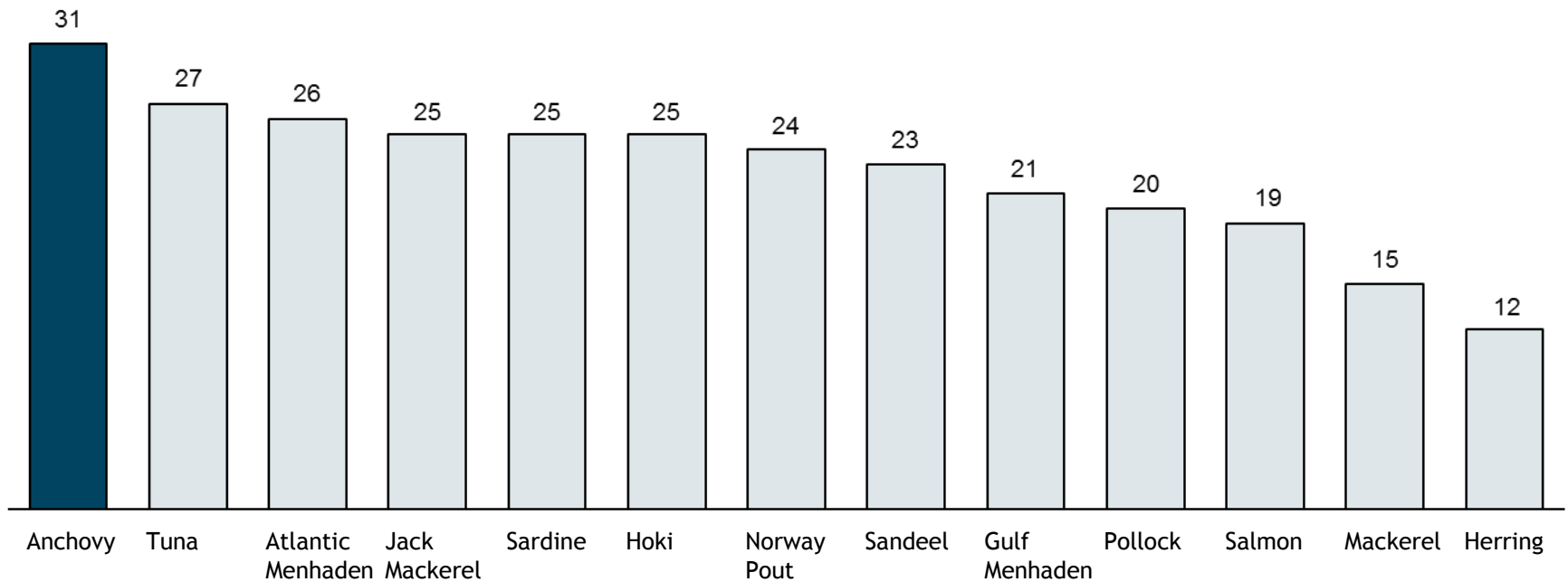
Global fish oil production variable, with a long-term average of around 1 million tons

Fish oil world production; '000 tons

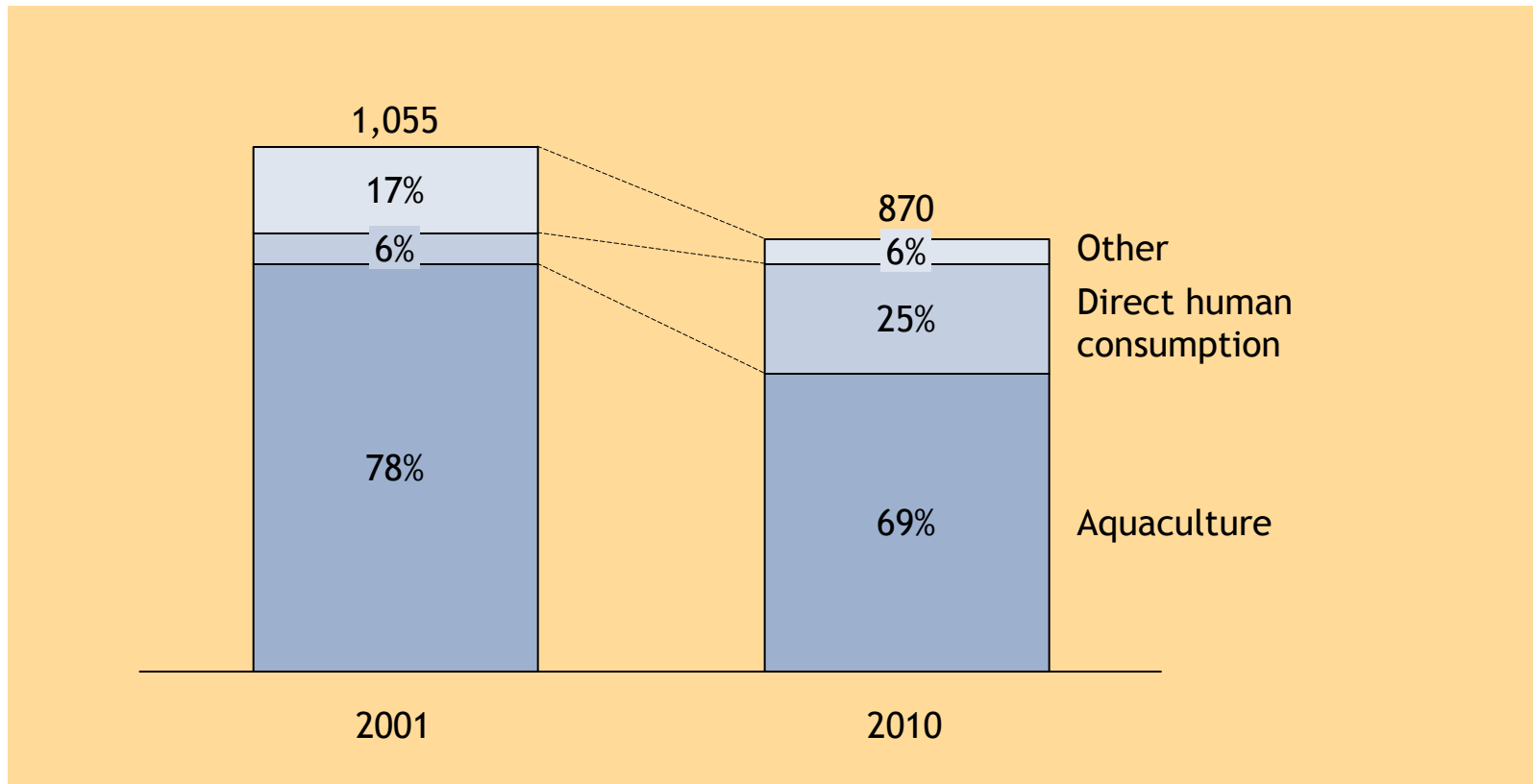


Anchovy is the preferred source for omega-3 production, given the high omega-3 content


EPA/DHA Concentration in various fish oils, percent



Increasing share of fish oil for human consumption - but vast majority still for aquaculture




EPA and DHA Products on the market today



CN LAB standard Tablet list
Vitamin C chewable
 01. Vitamin C 60mg Chewable
 02. Vitamin C 250mg Chewable Tablets Plus 50mg Acerola
 03. Vitamin C 500mg Chewable Tablets (Lemon/Orange/Blackcurrant)
 04. Vitamin C & Bio 500mg Chewable
 05. Vitamin C & Bio 1000mg Chewable
 06. Vitamin C 500mg with Rose Hips chewable
 07. Vitamin C 1000mg with Rose Hips chewable

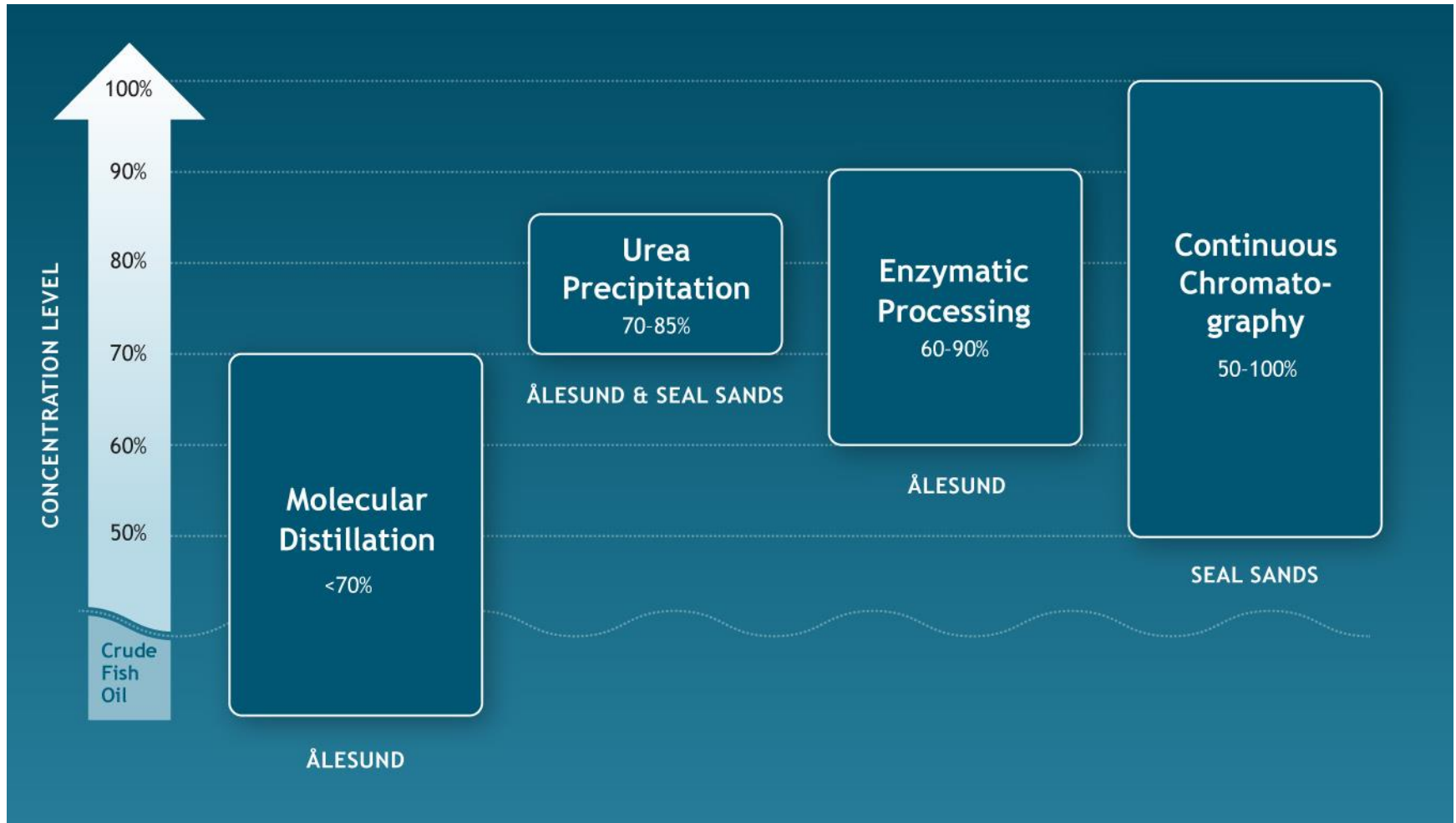
CN LAB standard Softgel product list
 CLA-80 1000mg
 EPO 1000mg 1000mg GLA + Vitamin E 1000mg
 EPO 500mg 1000mg GLA + Vitamin E 500mg
 Fish Oil / Salmon Oil / Omega 3 (18/12) 1000 mg
 Fish Oil / Salmon Oil / Omega 3 (18/12) 500 mg
 Fish Oil (30/20) 500mg
 Fish Oil (30/20) 1000mg
 Fish Oil (40/20) 500mg
 Fish Oil (40/20) 1000mg
 Fish Oil (33/22) 500mg
 Fish Oil (33/22) 1000mg
 Fish Oil (36/24) 500mg
 Fish Oil (36/24) 1000mg
 Fish Oil (50/25) 500mg
 Fish Oil (50/25) 1000mg
 Fish Oil (25/50) 500mg
 Fish Oil (25/50) 1000mg
 Fish Oil (70/10) 500mg
 Fish Oil (70/10) 1000mg
 Fish Oil (10/70) 500mg
 Fish Oil (10/70) 1000mg
 Fish Oil (10/70) 1000mg
 Fish Oil (6/75) 500mg
 Fish Oil (6/75) 1000mg
 Fish Oil (10/40) 500mg
 Fish Oil (10/40) 1000mg
 Salmon Fish Oil (8/12) 1000mg
 Flax Seed Oil 1000mg
 Flax Seed Oil 500mg
 Green Tea + CLA 1200mg
 Green Tea + CLA 1200mg
 Lecithin 1200mg
 Lecithin 1200mg
 Liquid Calcium 1200mg
 Calcium Carbonate 600mg
 Natural Vitamin E 400IU 400mg
 Omega 369 1200mg
 Pump Seed Oil 1000mg

Fish Oil (36/24) 500mg
 Fish Oil (36/24) 1000mg
 Fish Oil (50/25) 500mg
 Fish Oil (50/25) 1000mg
 Fish Oil (25/50) 500mg
 Fish Oil (25/50) 1000mg
 Fish Oil (70/10) 500mg
 Fish Oil (70/10) 1000mg
 Fish Oil (10/70) 500mg
 Fish Oil (10/70) 1000mg
 Fish Oil (10/70) 1000mg
 Fish Oil (6/75) 500mg
 Fish Oil (6/75) 1000mg
 Fish Oil (10/40) 500mg
 Fish Oil (10/40) 1000mg
 Salmon Fish Oil (8/12) 1000mg

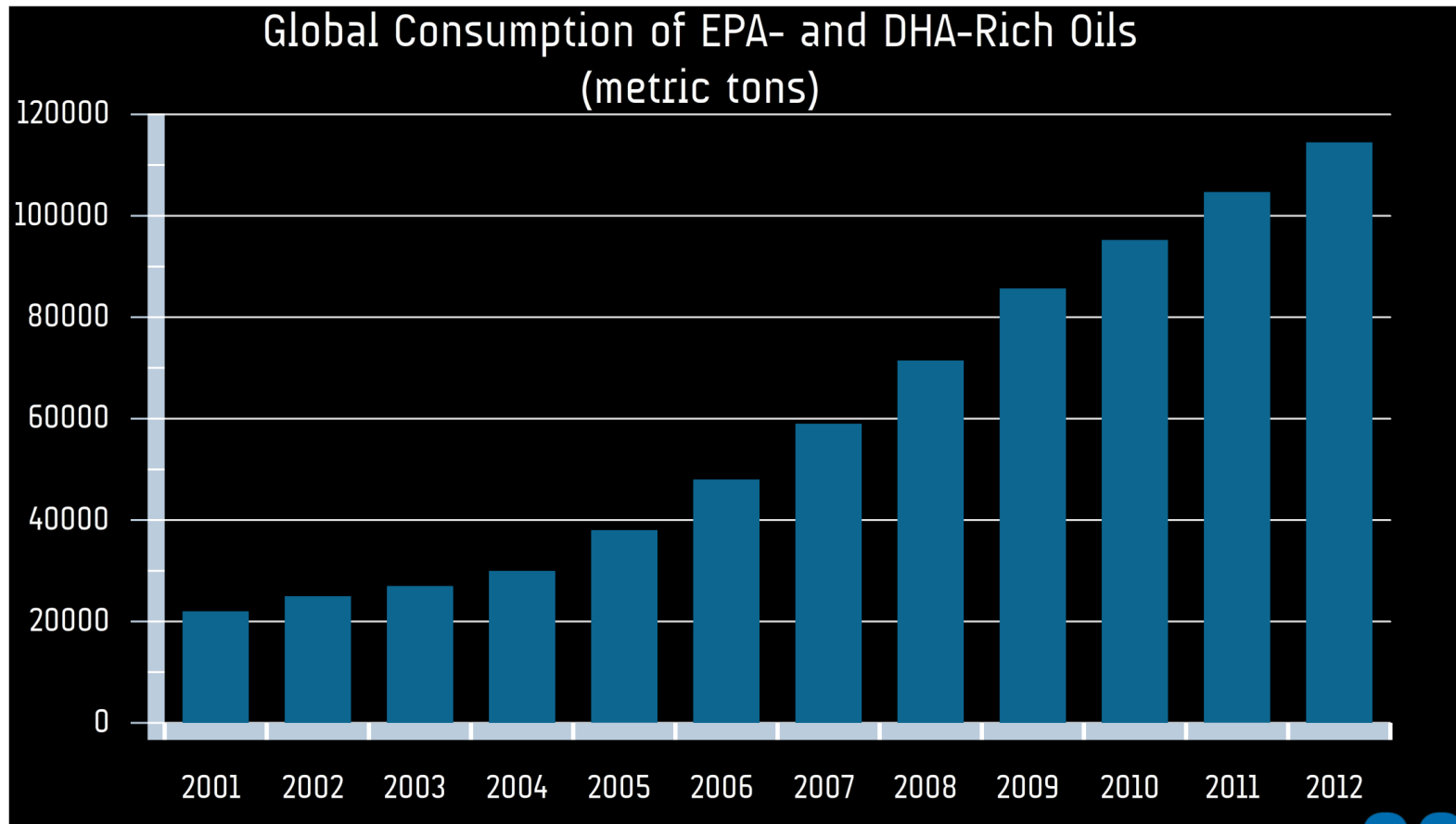


- Natural oils
- Medium and high concentrates
- Ultra concentrates

There are several ways to make omega-3 concentrates.



Global Consumption 2001 - 2012



Lýsi til manneldis

- Lýsi í barnamat (Infant Formulas)
- Lýsi sem heilsuvara (Nutraceuticals)
- Lýsi sem markfæði (Funtional food)
- Lýsi til lyfjagerðar (pharmaceuticals)



\$25.4

Billion

Estimated Global Consumer Spending on Products
Containing EPA/DHA Oils

Source: Packaged Facts

GOED
OMEGA-3

Consumers actually spend more on EPA and DHA fortified foods than supplements or pharmaceuticals

Global Consumer Spending on EPA & DHA Omega-3 Products, 2011

Billions of US\$



Source: Packaged Facts

GOED
OMEGA-3

However, these foods contribute much less EPA and DHA to the diet than supplements

Global Consumption of EPA & DHA Oils in Consumer Products, 2011

Metric Tons



Source: Frost & Sullivan

GOED
OMEGA-3

EPA and DHA omega-3s have become attractive targets for new pharma products

38

Pharmaceuticals or pharma targets in development or on the market using EPA and/or DHA omega-3s

14

Companies that are publicly looking into new pharma targets using EPA and/or DHA

21

Health indications being targeted by these new and existing pharma products

However, only 3 of the 36 pharma targets using EPA/DHA have been launched

Epadel

Mochida Pharmaceuticals

- 97% EPA product
- For treatment of arteriosclerosis obliterans and hyperlipidemia
- Only sold in Japan to date
- Generic competition now allowed

Omacor

Pronova Biopharma

- 85% EPA and DHA product
- For treatment of very high triglycerides
- Sold in 57 countries under the Omacor, Lovaza, Zodin, Eskim, Esapent and Seacor brand names

Vascepa

Amarin Corporation

- 97% EPA product
- For treatment of very high triglycerides
- Launched in Q1 2013 for sale in the US

Source: Company filings

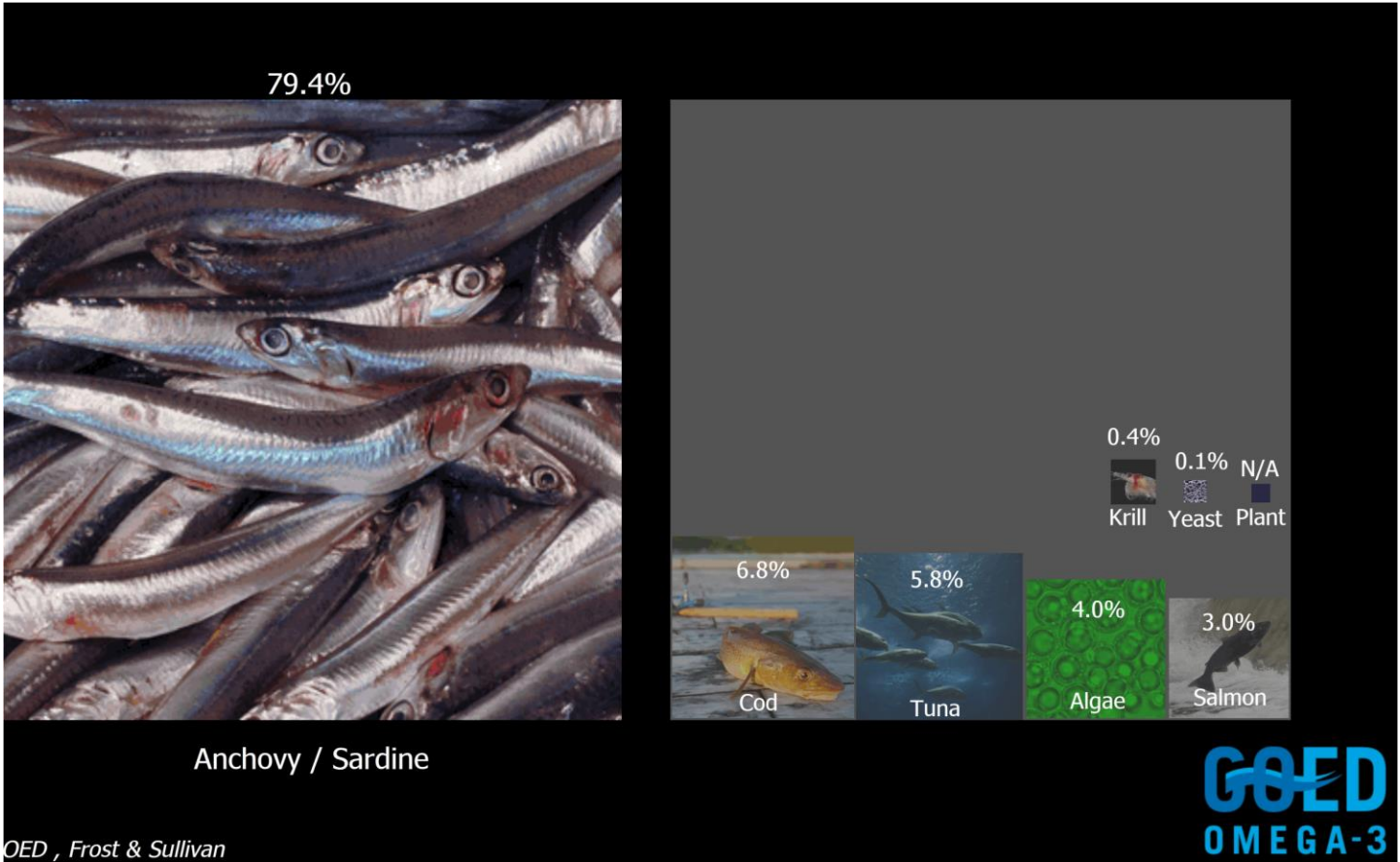
GOED
OMEGA-3

Total volume sold in 2013 for human consumption

- * The total volume sold in all categories of Omega-3 oils in 2013 is estimated to be around

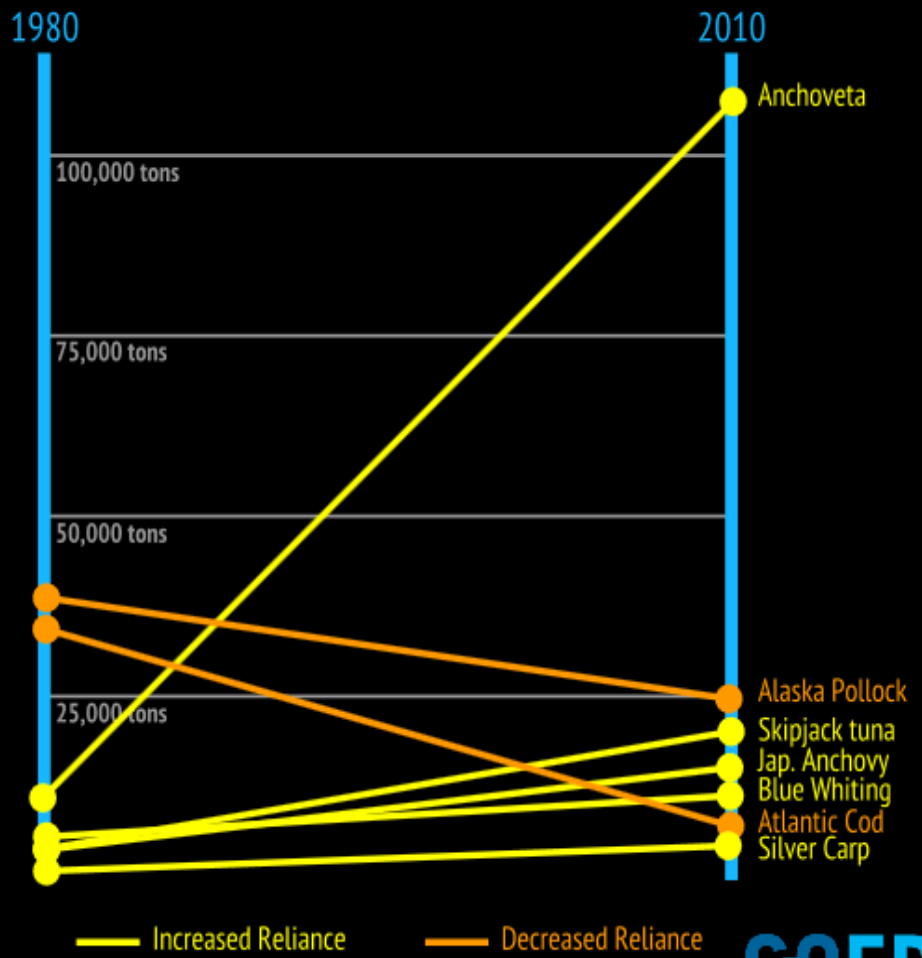


135.000 mt.



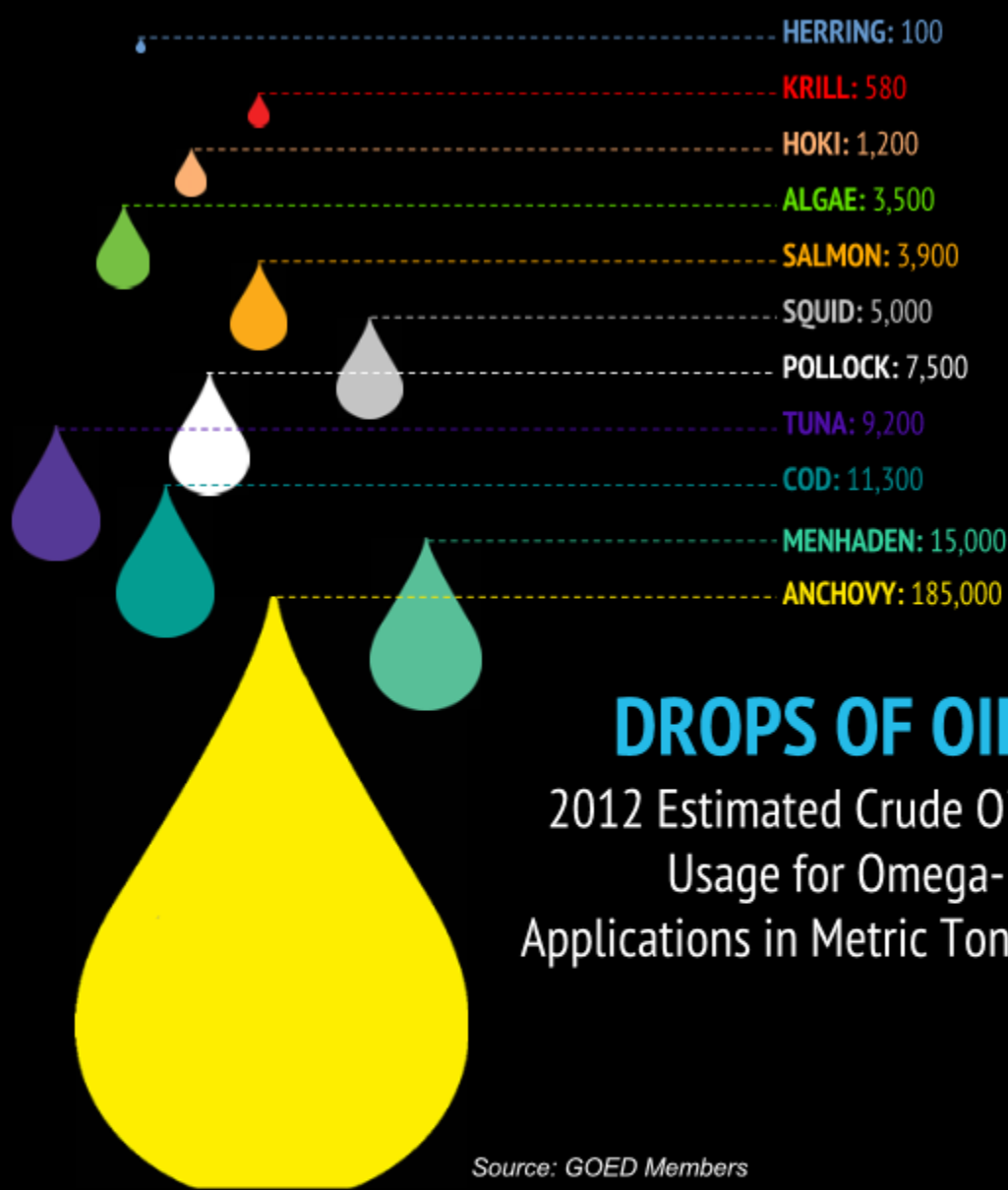
We know that fishery capacity of EPA and DHA is already changing and that we are more reliant on fewer fisheries for these nutrients, the anchoveta fishery in particular.

30-Year Change in EPA and DHA Capacities of Leading Fisheries



Source: GOED analysis of FAO and USDA data





Source: GOED Members

DROPS OF OIL

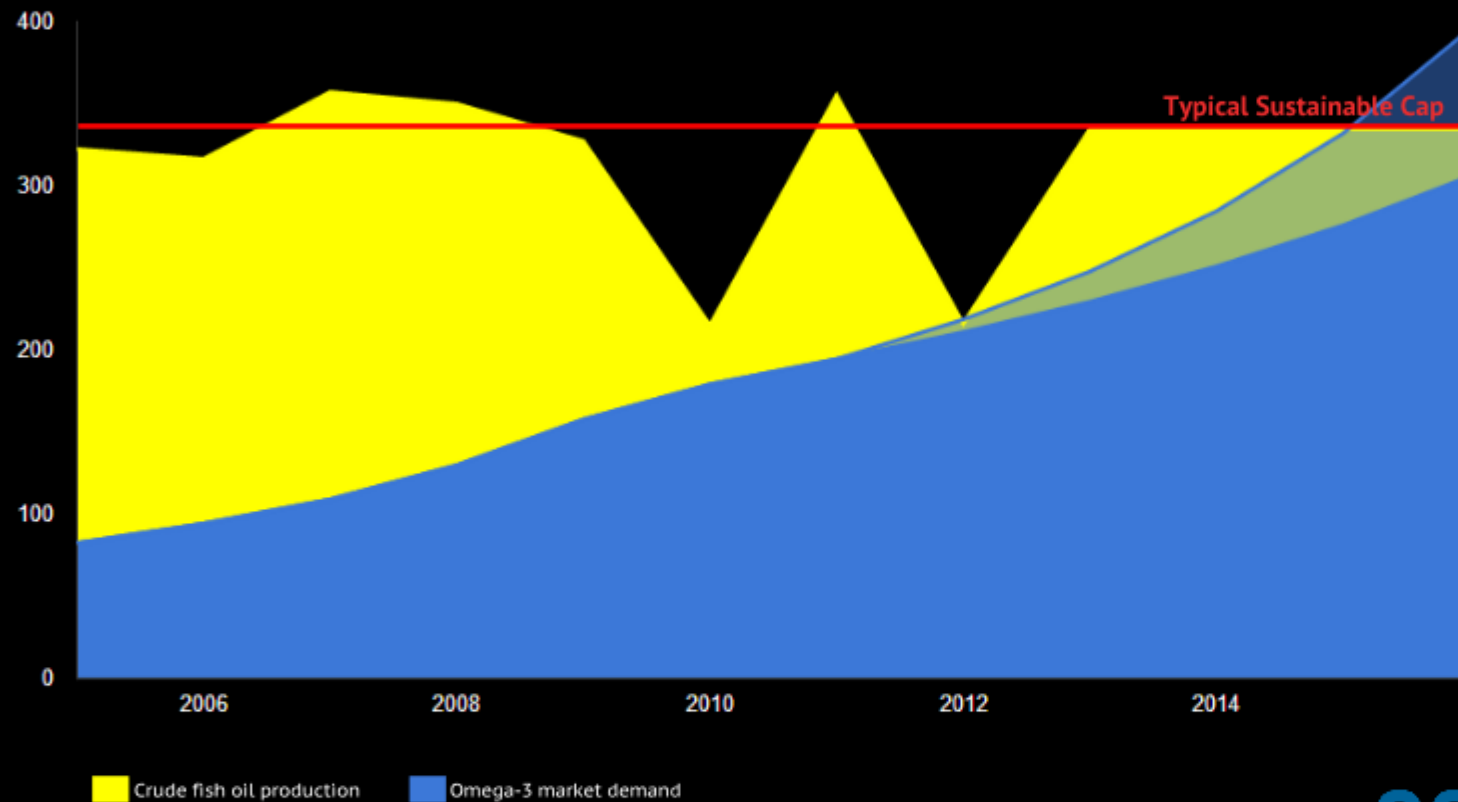
2012 Estimated Crude Oil
Usage for Omega-3
Applications in Metric Tons

It is no secret that understanding of omega-3 supply trends is tied intimately to the anchovy fisheries

We have presented data in the past on an impending supply shift as a result of demand increasing beyond the anchovy capacity

Crude Anchovy Fish Oil Production and Omega-3 Market Demand

(in 000s of metric tons)



Source: International Fishmeal and Fish Oil Organisation, Frost & Sullivan, GOED Analysis

GOED
OMEGA-3

Fish



- Anchovy
- Sardine
- Mackerel
- Tuna
- Cod
- Salmon
- Menhaden
- Trout
- Pollock
- Hoki
- Halibut
- Sandeel
- Angelfish
- Saithe

Squid



- Market Squid
- Shortfin Squid

Zooplankton



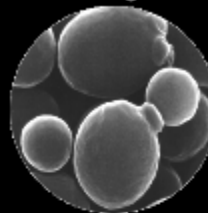
- Antarctic Krill
- Pacific Krill
- Northern Krill
- Calanus
- Shrimp

Algae



- Schizochytrium
- Cryptocodinium
- Euglena
- Nannochloropsis
- Phaeodactylum
- Nitzschia alba
- Aurantiochytrium

Fungi



- Y. Lipolytica
- M. alpina
- Sap. diclina
- Sac. kluyveri
- C. elegans

GM Plants



- Soybeans
- Rapeseed
- Brassica
- Linseed
- Rockcress

The list of omega-3 sources, both commercial and in research, is getting longer with new algae, new fish and new zooplankton projects having been announced in the last six months

Hver er þróunin ?

Lýsis iðnaðurinn til manneðis veltir í ár um 285 milljörðum króna

Eftirspurn eftir lýsisafurðum eykst hraðar en framboð af búklýsi

Nýjar uppsprettur af EPA/DHA omega-3 fitusýrum hafa verið þróaðar á undanförunum árum

Uppkaup og sameining fyrirtækja á þessu sviði hefur verið mjög hröð

Nýjir risar hafa orðið til : BASF (Pronova, Equatek, Napro), DSM (Ocean Nutrition, Martek, Roche Lipid Technology), FMC (EPAX) og Croda

Þessi iðnaður er kominn til að vera



Búklýsisframléiðslan á Íslandi (mt)

jan-okt 2013	42 241
year 2012	56 289
Year 2011	49 459
Year 2010	43 766
year 2009	62 595
year 2008	72 489
year 2007	50 740
year 2006	50 730
Average :	55 153

Möguleg Verðmætasköpun

- Meðal framleiðsla á búklýsi sl. 7 ár er 55.153 mt.
- Næst allt búklýsi á Íslandi er selt til fóðurgerðar
- Einungis ein fiskimjölsverksmiðja á Íslandi uppfyllir reglugerð EU um framleiðslu á lýsi til manneðis

Möguleg Verðmætasköpun

- Verð á búklýsi til fóðurgerðar er í dag um USD 1850/mt
- Árlegt verðmæti 55.153. mt af hrálýsi í dag er u.þ.b. 102 million USD eða 12.24 milljarðar IKR.
- Verð á fullunnu (án þykkingar) búklýsi til íblöndunar í matvæli er USD 10.000/mt
- Möguleg verðmætaaukning : 54 milljarðar IKR



One *teaspoonful*
of
Parke-Davis
Standardized
COD-LIVER
OIL

is equivalent in Vitamin A
content to-

- 5½ quarts of Milk or
- 1 lb. of best cream-
ery butter or
- 9 eggs.

An illustration of a bottle of Parke-Davis Standardized Cod-Liver Oil, a block of butter, and a carton of eggs. The bottle is on the left, the butter is in the center, and the egg carton is on the right. Lines connect the text to the corresponding items.

GARANTIE NATURELLE
SANS AUCUNE PRÉPARATION,
SANS AUCUN MÉLANGE

An illustration of three children (two girls and one boy) looking up at a large cod fish hanging from a hook. The children are dressed in simple clothing. The background is dark blue.

TELE EST
L'HUILE DE FOIE DE MORUE
VENDUE PAR

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Vascepa[®]

(icosapent ethyl)

Capsules

1 gram

120 capsules

R_x only

**EACH CAPSULE
CONTAINS 1 GRAM OF
ICOSAPENT ETHYL**

**USUAL ADULT
DOSAGE:**

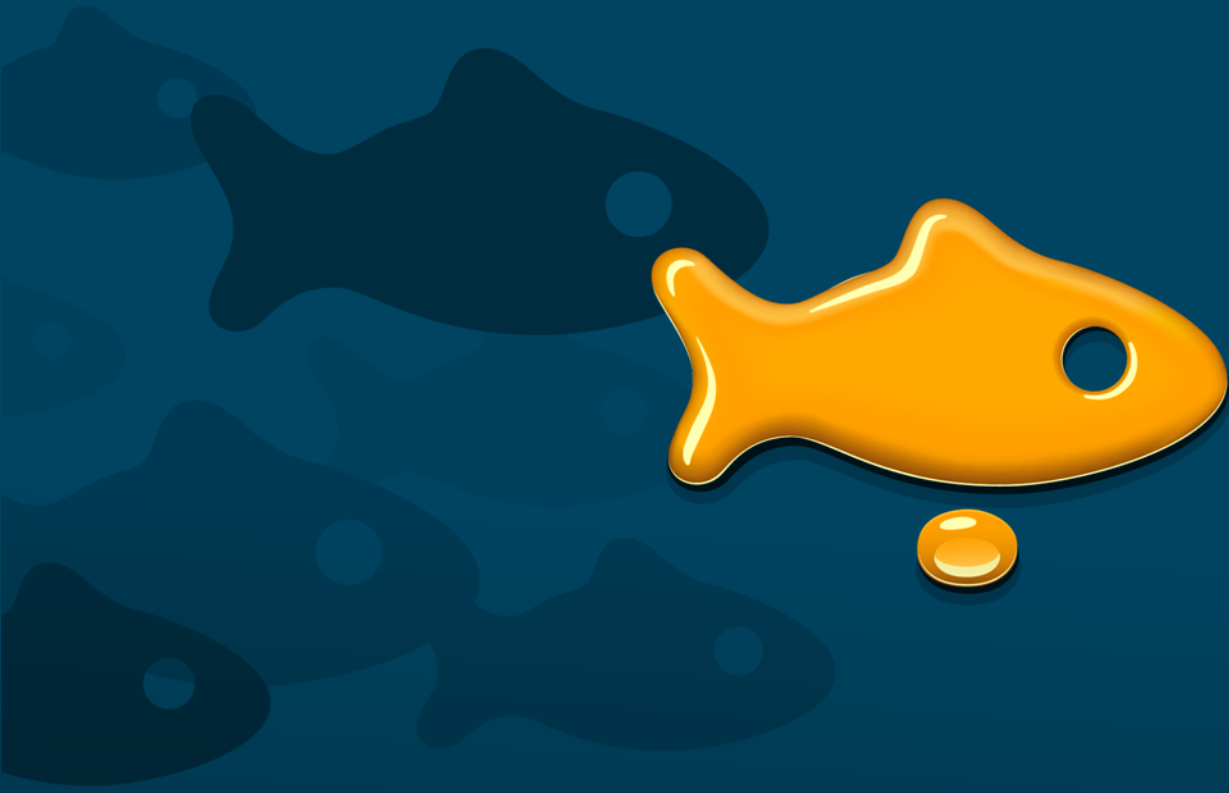
See package insert for
complete dosage
recommendations.
STORAGE: Store at
room temperature 20°
to 25°C (68° to 77°F).



AMARIN

..... new challenges and new opportunities





Thank you