

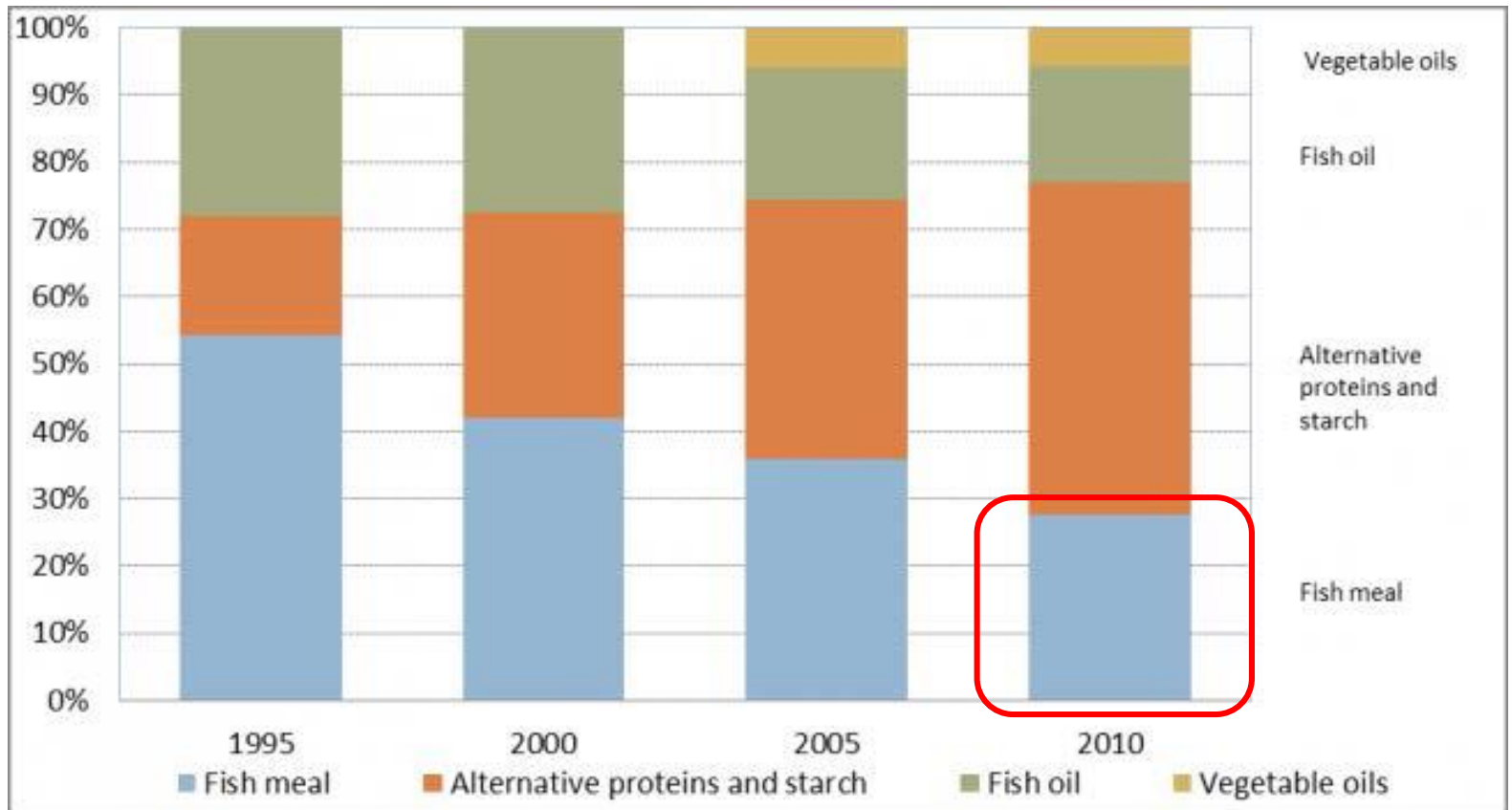
The Feed Challenge

- Regardless of technology, carnivorous fish need food and that feed is today still in taken from wild fish.
- Growth potential of aquaculture may be impaired by this fact and the basic natural limits are difficult to ignore

Feeding the fish..

- Significant digits for feed
- The growth potential?
- The options - not only about feed..
- The proposals

Feeding the fish.. significant digits for feed



Source: <http://www.izzo.net/node/464>
(The Fishmeal and Fish Oil Organisation)

Feeding the fish..

significant digits for feed - state of stocks

- In EU waters, "known" (with MSY est.) wild stocks: 30 of 62 are overfished (COM. data 2016, MSY benchmark)
- Not known? Example: North Sea: 64% unknown, 6% overfished; western waters 31% unknown, 31% overfished
- Mediterranean: 93 % overfished
- Deep sea stocks: 97 % unknown!
 - Observe: not all stocks used for feed

Feeding the fish..

The significant digits for feed

-Current range of fish in feed for calculating future needs (Biomar data)

Species	Fishmeal inclusion range	Fish Oil Inclusion Range
Bass & Bream	15-22%	5% (average)
Atlantic salmon	10-30%	10-20%
Rainbow Trout	10-25%	5-12%

Feeding the fish..

The significant digits for feed

Report EU parliament: Federation of European Aquaculture Producers (FEAP) foresee growth of 4% per year to 2021. With this EU scenario:

- Additional feed demand for cold and warm water marine species, plus freshwater: **395 000 tonnes = +15% compared to 2012**

How much more fish is that then?

= Between 205,400 – 243,913 tonnes whole wet fish

= a very moderate calculation

(Calculated on fish used both for meal and oil, assuming trimmings are used and that same fish can give both meal and oil)

Feeding the fish..

So, the growth potential?

...Increased catches of 205,400 – 243,913 tonnes how much is that?

-A line of 1 kg milk cartons from Stockholm to Sidney!

- 48% of EU stocks overfished
- Many stocks unknown: range from no MSY assessment to very limited knowledge at all
- Global situation is not better..
- Peru anchovy, Jack mackerel depleted/overfished and not a “solution”
- Simply put, the fish isn't really out there regardless of technology

Feeding the fish..

The options..

- New types of feed include insects, algae, yeast, mussels? ...however not all "legal yet"
- Better use of trimmings: already 35% input used, further gain possible?
- Processed animal proteins (PAPs) ?
- Refocus on behavior and food waste
- We must have more alternative species!

The likely answer is that all of the above must be used

NGO view clear: substitutes and alternatives must be equally sustainable or nothing is "gained"

The proposals

- We must get new alternatives off the testing table because that's where they are
- Introduce stepwise by setting clear goals and timeline
- We need to make way in legislation for new sustainable alternatives
- We must have existing feeds fully traceable and certified, and the alternatives also!
- Make full use of alternative species!
-especially last one, needs land based closed systems

Is demanding alternatives really an option, in permits, regulations?

- Yes of course, we do it all the time!
 - Emission rules for engines, alt. fuels
 - Targets for RES in power production
 - Phasing out chemicals
 - Setting rules and targets in fisheries