Anglers baits in Fisheries

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What's the problem?

- Historically the issue of bait in fishery hasn’t been an issue
- Traditional baits have had little impact on the nutrient levels in fisheries
- These traditional baits are relatively low in key nutrients (i.e. Protein and fat)-
- When these nutrient levels increase a problem can occur

What's the problem?

- Modern baits are therefore powerful stuff!
- What can go wrong?
  - Too much of a good thing!
  - Water quality issues
  - Impact on fish's body
  - Poisoning from poor quality baits

Modern baits

- The advent of large scale fish farming has produced food for these fish which are specifically developed to grow fish
- These foods are high energy, high nutrient
- This produces amazing growth performance with conversion factors of 1:1 or better
- This means that 1kg of food will give you 1kg of fish or more!

To get 10g of growth

Would you let someone throw nearly a tonne of sweet corn into a fishery? It's equivalent to a single 25kg sack of pellets

Modern baits

- These foods have now made the jump to angling
- Pellets are regularly used by anglers as bait
- The key ingredient, fishmeal is also used extensively in ground baits and boilies.
- Unlike the highly controlled environment of a fish farm, anglers are at liberty to use as much bait as they want

Modern baits

- The problem is pellets have little water in them and are loaded with protein and fat
- By their very nature they are highly digestible
- When used indiscriminately there are potentially serious water quality issues
- The key element is the protein content and quality

Protein

- Protein is the key ingredient fish need for growth and it's the amino acids in the protein that is important.
- In simple terms fish have a limit as to how much of the amino acids in the protein they can use
  - A carp can use up to 12g of protein per kg of body weight per day
- Any excess will be broken down and excreted as waste.
- Most of the pellets used are designed for salmonids or marine fish and have much more protein than coarse fish can use.

Diet comparison

	Adult Carp diet	Adult Trout diet	Marine Fish diet
Protein	32%	40%	50%
Fat	8%	20%	16%

Protein

- Protein is 16% nitrogen
- When protein is metabolised unlike fat or carbohydrates there is also the nitrogen to get rid of.
- This waste nitrogen is excreted as highly toxic ammonia
- Freshwater fish are surrounded by water so this ammonia is rapidly diluted and so rendered harmless

Protein

- When lots of protein is going into a fishery, lots of ammonia can be produced
- Waste uneaten food will be broken down by bacteria, they will also liberate more ammonia
- When the ammonia levels build up in the water it makes it difficult for fish to get rid of their own waste ammonia

Protein

- The aquatic environment does have the capacity to break down the ammonia but this can get swamped by the load going in.
- This lack of removal and increase in load can ultimately result in ammonia levels reaching toxic levels in a fishery

Poor quality pellets

- All pellets have a shelf life
- Also require cool dry storage
- Little information about this available to anglers
- Pellets left in the car for weeks during the summer will go off and lose vitamin content
- Fats become rancid, this is toxic to fish
- Damp pellets grow mould which release toxins harmful to fish.

Pellets

- If there are indiscriminate over use of pellets, problems will occur
- Not advocating pellet bans as issue is not that simple
- Angler education and awareness of the issues a better route

Modern Fisheries

- Modern still-water fisheries often have very high stocking densities
- This results in anglers bait being a significant part of the fish's diet
- Most baits are not formulated for feeding fish
- Most don't have sufficient levels of the essential nutrients

Modern Fisheries

- If fish are left to cope with eating most types of anglers baits they will suffer nutrient deficiencies
- Pellets are the only bait which is formulated as a food for fish
- Can provide massive boost to fish's energy levels prior to winter which increases survival

Modern fisheries

- Review the barbel record
  - 1990 around 14lb
  - 2008 well over 20lb
- Over 50% increase in weight in less than 20 years!
- No comparable effect in the previous 100 years
- No indication they have got much longer!
- Not just in one river but nationally
- Simply the affect of anglers using these high energy baits

Modern Fisheries

- Use of pellets and fishmeal is a good thing in terms of:
  - Nutritional quality
  - Good food for fish
  - Good bait
  - Fish get much bigger

Modern Fisheries

- However, they can become a problem if:
- Too much used in water body
- Anglers treat pellets like traditional baits
- Anglers are unaware of storage requirements for pellets

Boilies

- Massive variety and quality available
- Key issue is boilies are generally not designed as food for fish
- If boilies constitute the main diet of fish then problems occur
- Particular problem with carb. rich boilies and those containing preservatives

Boilies

- Carb. rich boilies don't meet nutritional requirements for fish
- Again too much of a good thing!
- Most fish are functionally diabetic.
- Too much simple carbohydrate can lead to the death of fish
- Some of the preservatives (Benzoic acid and potassium sorbate) in boilies have been shown to be toxic to fish

Thank you

Questions?