Chapter 14

Understanding Fish

Composition and Structure

- The edible flesh of fish is like meat and poultry, consisting of water, protein, fats and a small amount of minerals, vitamins.
- Fish has very little connective tissue. This is a very important difference between fish and meat. It means:
  - Fish cooks very quickly
  - Fish is naturally tender
  - Moist-heat cooking is not used to tenderize but to provide moistness
  - When cooked, fish tends to fall apart easily

Special Problems in Cooking Fish

- Doneness and flaking
  - When fish is cooked it breaks apart into natural separations called “flaking”.
  - Fish is often served overcooked, because of residual cooking after it is removed from the heat.
- Observe these tests for doneness:
  - If the fish just separates into flakes
  - If there is bone, the flesh separates from the bone, and the bone is not pink
  - The flesh has turned opaque or white (depending on the fish)

  Do not overcook!

Cooking Fat and Lean Fish

- Lean fish are low in fat (like flounder, sole, cod).
  - Moist-heat methods - Lean fish is well suited to poaching
  - Dry-heat methods – If broiled or baked, lean fish should be basted
  - Dry-heat methods with fat – Lean fish may be fried or sautéed. The fish gains added palatability from the added fat
- Fat fish are high in fat (like salmon, tuna, trout, and mackerel).
  - Moist-heat methods - Fat fish can be poached like lean fish
  - Dry-heat methods – Fat fish are well suited to broiling and baking. It removes excess oiliness.
  - Dry-heat methods with fat – Fat fish can be cooked in fat, but take care to drain before serving.

Fish-Market Forms

- Whole or round - intact
- Drawn – viscera removed
- Dressed – only sides (no head, scales, fins, or viscera)
- Steaks – cross cuts w/backbone
- Fillet – boneless sides (skin on or off)
- Butterflied fillets – boneless sides still connected
- Sticks or tranches – cross cut fillets

Cutting Fish – Market Forms

- Buying processed fish versus cutting it yourself
  - Generally speaking it is better to do your own fish butchering based on:
    - Freshness
    - Cost
    - Availability
    - Usage of bones heads, fins, and fat
    - The overall consideration is what you plan to do with the fish and what forms are economical to your operation

Saltwater Fish - Flatfish

- Flounder
- English sole
- Petrale sole
- Domestic Dover sole
- Turbot
- Halibut

Saltwater Fish - Round Fish

- Artic Char
- Atlantic cod
- Atlantic salmon
- Black Sea bass
- Bluefish
- Chilean Sea bass
- Chinook or King Salmon
- Cod
- Coho or silver salmon
- Grouper
- Haddock
- Herring
- Jack
- John Dory
- Mackerel
- Mahi-mahi
- Monkfish
- Ocean Perch
- Orange Roughly
- Pacific cod
- Pollock
- Pompano
- Porgy
- Red Mullet
- Red Snapper
- Salmon
- Sardine
- Shad
- Shark
- Skate
- Striped Bass
- Swordfish
- Tilefish
- Triggerfish
- Tuna
- Wahoo or Ono
- Weakfish
- Whiting

Freshwater Fish

- Catfish
- Eel
- Perch
- Pike
- Tilapia
- Trout
- Whitefish

Handling and Storage

- The most important concern with storage is temperature
  - All fish should be stored at 30° to 34° F
  - Keep moist
  - Prevent fish odors from transferring to other foods
  - Protect the delicate flesh from bruising and being crushed
- Storage time not to exceed 1 to 2 days, if fresh

- Due to increased demand and improved preservation and transportation techniques, good quality fish and shellfish is readily available
- Most fish and shellfish is expensive
- All are highly perishable
- Cooking times are generally short
- The taste is generally mild and delicate
- Special attention has to be given to the perishability to produce high quality food

Determining Freshness

- Freshness can be checked by:
  - Smell
  - Eyes
  - Gills
  - Texture
  - Fins and scales
  - Appearance
  - Movement

Frozen, Canned, and Other Processed Fish

- Federal Inspection
  - Fish and shellfish grading is voluntary
  - They are performed on a fee-for-service program by the Unites States Department of Commerce and National Oceanic and Atmospheric Administration (NOAA) to ensure safety of fresh and processed fish
- Frozen – accounts for more daily consumption than fresh

Frozen, Canned, and Other Processed Fish (cont'd)

- Checking quality of frozen fish
  - Should be frozen when received
  - Look for a fresh, sweet odor, no strong, fishy odor
  - Fish should be wrapped well with no freezer burn
  - Some frozen fish is glazed with a thin layer of ice to prevent drying
- Storage
  - Be stored at 0° F
  - Well wrapped to prevent freezer burn
  - Maximum time of storage
    - Fat Fish: 2 months
    - Lean fish: 6 months

Thawing and Handling

- Frozen raw fish
  - Thaw in refrigerator, allowing 18 to 36 hours
  - Small pieces can be cooked from frozen state, up to 8 ounces
- Canned Fish:
  - Check for signs of damaged or dented cans
  - Store in a cool dry place
  - Opened fish should be put in a wrapped container, labeled, and can be kept for 2 to 3 days

A Little Information on Nutrition

- Fish and shellfish are low in calories, fat, and sodium and high in vitamins A, B, and D and protein. Fish are high in a group of polyunsaturated fatty acids called Omega-3.