INPUTS

A TWO-LEVEL MULTIOBJECTIVE NONLINEAR PROGRAMMING MODEL

OUTPUTS

Policy Goals
- Max fleetwide profit
- Max recreational trips
- Max employment
- Min gear conflict

Policy Instruments
- Area closure
- Seasonal closure

Biological Conditions
- Stock abundance
- Max CPUE

Market Conditions
- Prices
- Costs

Fleet Characteristics
- Max # of trips
- Crew expected income
- Fixed costs

Optimizing Objective Value(s)

Optimal Effort

Feasible Effort

Individual Vessel

Owner & Crew Entry Conditions

Feasible Fleets

Feasible Trips

Trip Entry Conditions

Variable CPUE

Fleetwide

•Stock Constraint
•CPUE & Effort Relationship

Stock Constraint

CPUE

Catch/Stock (Effort)

Tradeoff among Goals
- Compromise solutions

Effort Level
- Fleet mix
- Seasonal distribution
- Spatial distribution

Stock Utilization
- Harvest level
- Allocation among fleets

Figure 1. Model Structure