

Institutional Analysis of Taşucu Bay Coastal Fishery, Turkey

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1 Part I: Static Analysis - Collective action

The coastal fishery in Taşucu Bay is located near the small port town of Taşucu in Mersin Province, Turkey. The key resources (natural infrastructure) in the system are the marine food web. The key shared resource relevant to the commons dilemma faced by the community is demersal fish stocks and their productivity (common-pool). The original case, which spans from 1976-1978, catalogues 140 fishermen and 90 small inboard boats; the resource unit is demersal (bottom-dwelling) fish. All of the fishermen belong to the local cooperative, which has successfully controlled access to the CPR by fighting off competing users. It provides financial assistance to the fishermen, controls the type of fishing technology used in the bay, and markets the fishermen's catch. This case study is part of the original Common-Pool Resource (CPR) database. A summary of the original CPR coding conducted in the 1980s by Edella Schlager and Shui Yan Tang at Indiana University may be found [here](#).

1.1 The Commons Dilemma

- The potential appropriation problem was overcome by the formation of the Taşucu Bay cooperative in the town of Taşucu, which occurred in 1968. The cooperative was founded by a local businessman/fisherman. The Co-op cannot legally create rules of fishing rights in the area as is the case of other lagoon fisheries in the vicinity. However, the cooperative indirectly solves the problem of allocation of fishing rights to local residents only by providing extremely desirable benefits to fishermen who join. The cooperative also protects the bay from intrusion by trawlers. The potential poor coordination of appropriation problem with outsiders was not overcome given the existing conflicts between the small-scale fishermen and the shrimp trawlers. The lifting of the 3-mile trawling ban by the government in 1983 is considered a serious blow to the financial welfare of small-scale fishermen and a threat to the sustainability of the resource.
- The potential under provision of public infrastructure was not overcome since a policy to provide financial assistance to support a truly offshore trawling fleet is lacking, which forces the continued conflict over resources between small-scale fishermen, who cannot move offshore, and trawler operators. The success of local-level management is outside the control of the local fishermen who lack legal rights to limit access to the fishing ground. Fishing rights cannot be formalized by the cooperative (co-op) and they are left to depend on inconsistently implemented regulations (i.e. the 3-mile ban on trawling).

1.2 Biophysical Context (IAD)

- **Natural infrastructure:** The coastal fishery in Taşucu Bay is located near the town of Silifke, Turkey. The Mediterranean Sea consists of biologically-poor waters due to its oligotrophic (i.e. low nutrient levels) conditions leading to low levels of productivity. However, bottom-dwelling species that are of limited abundance but relatively high market value, such as sea breams, basses, mullets, groupers, and snappers, are targeted by the fishery. The Taşucu co-op operates in Taşucu Bay and the adjacent coastal waters, but not in the lagoons or mouths of the Göksu River where a different cooperative operates. No apparent conflict seems to arise from the overlapping between the two cooperatives in the area despite their close proximity. Taşucu fishermen seem to be able to make a good living without fishing particularly hard, which may be due to a higher rate of replenishment of the resource in the bay area (inferred).
- **Hard human-made infrastructure:** The 140 fishermen operate 90 small inboard boats in the fishery. The motorized boats used for small-scale fishing are 8 m open boat with a 10-25 HP inboard diesel engine (larger units may use 10 m boats with 3 fishermen). Few boats are equipped with depth recorders or fish finders. The gears used are mostly trammel nets, which are modified gillnets of small or large mesh depending on the target species and set on the bottom within the shelf area, and longlines, which consist of a series of baited hooks on a main line attached to a float. Boats return to home ports within a day and the catch is marketed locally. The cooperative operates a freezer/cold storage facility to stabilize prices and to control the market. The cooperative also sells equipment at a subsidy. Taşucu fishermen seem to be able to make a good living without fishing particularly hard, which may be due to the prohibition and control of destructive fishing practices advocated by the cooperative.

The area is also visited by shrimp trawlers who operate on 15-25 m wooden boats of a schooner-type design and a crew of 7 to eight men. These trawlers drag a bag-shaped net equipped with otter-boards and catch shrimp. Trawling is destructive to the coastal marine environment, and trawl nets also snag juvenile and adult demersal fish which are discarded as bycatch, thereby depleting the target resource of small-scale fishermen (inferred).

1.3 Attributes of the Community (IAD)

- **Social Infrastructure** There are 140 fishermen in the fishery all from the same town of Taşucu and all belong to the same cooperative of Taşucu Bay Co-op, which was founded in 1968. The right to fish is not restricted to members, but membership comes with attractive benefits. There exists conflict between small-scale fishermen and large-scale shrimp trawling fishermen who in 1983 were allowed, by government decision, to fish within the 3-mile limit off the coast.
- **Human Infrastructure** Human infrastructure in the Taşucu Bay fishery is assumed to be adequate (inferred). The percentage of traditional fishermen is well under 50%. New membership to the cooperative is encouraged to help the cooperative build a stronger financial position and political power. The lifting of the 3-mile trawling ban was brought upon by a strong representation of trawlers (100 fishermen as of 1985) who claimed they were otherwise unable to make a living. The Taşucu cooperative

has joined forces with two neighboring cooperatives (totaling 1,000 members) to try to have the 3-mile ban reinstituted.

1.4 Rules in Use (IAD)

Position Rules: 1) 140 small-scale fishermen who are members of the Taşucu Bay Cop, 2) Small-scale fishermen who are non-members of the cooperative, 3) Large-scale shrimp trawling fishermen, 4) Government officials in charge of fishing regulations, 5) Dynamite fishermen, 6) Night-fishermen, and 7) Members of other neighboring cooperatives.

Boundary Rules: Fishing is not restricted to cooperative members.

Choice Rules:

- Small-scale fishermen generally fish within waters in the immediate area of the fishing community due to their gear capabilities.
- Shrimp trawlers fishing activities may range up and down the coast, sometimes spending months away from home port.
- Taşucu Bay fishermen may not fish in the adjacent lagoons or at the mouth of the Göksu River.

Aggregation Rules: Government officials have the authority to decide on the lifting or reinstating of the 3-mile zone trawling ban.

Scope rules:

- Trawl fishing is allowed within 3 miles off the coast (except from mid-April to mid-July).
- Dynamite fishing is banned by the cooperative.

Information Rules: Not mentioned in the study.

Payoff Rules: Members of the cooperative enjoy a \$3,000 bank credit (enough to cover start-up costs of a modest new fishery and in some cases pay off the loan within a year), and a year-round, seasonally adjusted guaranteed price for the fish. Cooperative members also have access to a freezer/cold storage facility and can purchase fishing equipment at subsidized prices.

1.5 Summary

The success of the Taşucu Bay fishery has been attributed to the existence of their cooperative. The cooperative indirectly solves the problem of allocation of fishing rights to local residents by offering incentives that make it extremely desirable for fishermen to belong to the local cooperative. The homogenous community of users and its relative small size gives way to reciprocal and mutually reinforcing relationships that facilitate appropriate local-level management. The sustainability of this fishery is under threat by government-facilitated rule change allowing trawler access of the 3-mile coastal zone, as well as the cooperative's lack of de jure rights to the fishing ground.

2 Part II. Dynamic Analysis - Robustness

Given the source document, there is insufficient data to make any assessment on the temporal dynamics (resource and social conditions, etc.) of this particular common-pool resource. The contributors thus far have been unable to locate any specific updates for this case study.

3 Part III. Case Contributors

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