Israeli Aquaculture in a nutshell

General

Israeli aquaculture was established during the 1930's with the introduction of common carp and growing it in earth ponds. Low yields and grow-out densities characterize this extensive, simple, low-cost operation, that nonetheless, remains the most common fish culture method in Israel and world-wide. The Israeli total annual production for 2013 was 22,524 tons, of which 89% were produced inland. The Kibbutzim of the Beit-She'an valley are the major producers and their yields account for approximately 60% of the total production. Small scale, but interesting production, takes place in the Negev desert, were the producers utilize the local deep brackish aquifer. Several freshwater breeding centers supply the demand for fingerlings, for the most part tilapia and carp. In addition, major tilapia farms produce their own fingerlings. Rainbow trout embryos are imported from the U.S. Two breeding centers produce and supply gilthead sea bream to the mariculture industry: Ardag (Eilat) and Dag-On (Kibbutz Ma'agan Michael).

Mariculture

Mariculture, the farming of marine plants and animals, has developed in Israel (and in Europe) since the early 70's. This field of the Israeli aquaculture industry was developed, and until recently operated, in Eilat. Two major factors are responsible for this development: a) the presence of the National Center for Mariculture in Eilat, a top governmental research institution. b) The calm temperate water of the Red Sea, which are crucial for sea-pen operation. The major species produced is the sea bream and production peaked at 3,000 tons/year. Following a governmental decision, due to environmental concerns, the Red Sea mariculture operations were shut down in 2008. The Israeli mariculture is currently operating in Ashdod (35 km south of Tel-Aviv), where two companies, Ardag and Dag-Suf, are producing sea bream only. Two thirds of the production is in-harbor and the rest are produced six miles off Ashdod in submersible sea pens ("open-Ocean" mariculture). The latter is still in its early stages and is facing challenges. Nevertheless, Israeli authorities are identifying and allocating areas off-shore for the expansion of the Mariculture industry.

The majority of Israeli aquaculture is "true aquaculture", i.e. species with closed life cycles, in which cultivated broodstocks are producing fingerlings for the farming industry. Grey mullets, however, are captured-based. Fingerlings are caught in estuaries during October – December and stocked in earth ponds for on-growing. This operation has many limitations and is argued to be non-sustainable.

Table 1. Production in tons of the Israeli aquaculture.

	1950	1970	1990	2013
Tilapia	20	1,400	4,795	8,184
Com. carp	2,900	10,175	7,902	5,214
Sea bream			84	2,520
Grey mullet		170	802	2,240
Grass carp				525
Trout[1]	64	154	480	520
Red drum				470
Hyb. Bass[2]				240
Silver carp	331	916	572	214
seabass				204
Barramundi				150
Sturgeon[3]				30

[1] Rainbow trout; [2] striped bass x white bass; [3] flesh is the by-product of the caviar production. Source- FAO 2015.

Algae

An exciting and growing field of Israeli Mariculture is microalgae farming. Aiming at producing high-end products for human consumption, nutrition and cosmetics, the Israeli microalgae industry is gathering enthusiastic supporters. Three major producers are currently active: NBT, Eilat- producing *Dunaliella salina* as a source of β-carotene for the Japanese market; Alga Technologies, Ketora- Producing *Haematococcus pluvialis* as a source for Astaxsanthin; and Frutarom, Gilat/Haifa- producing polysacharide from *Porphyridium cruentum* for the cosmetics industry. Small-scale macroalgae farming also takes place in Israel. The major producer is Seakura, Mikhmoret- producing *Ulva lactuca* for human consumption.

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