Brood Stock Recommendations

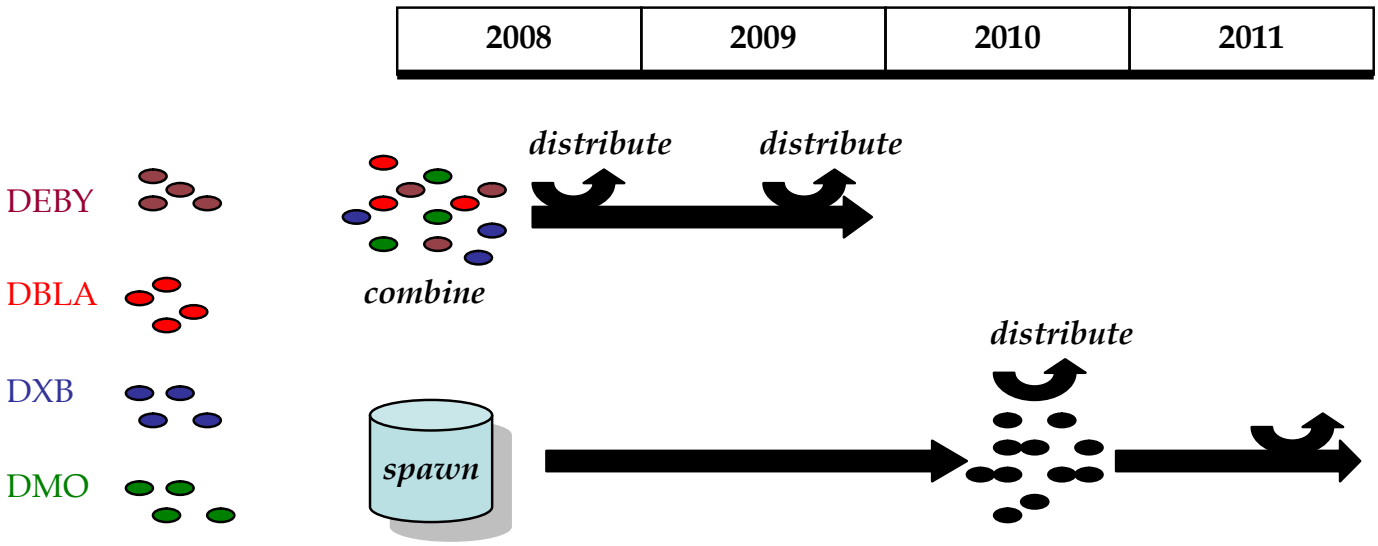
Diploids - selected lines

At this point in time we are not recommending specific lines, such as the ones we used in line testing. Rather, these lines have been grouped into the new super lines as below (Table 5). For 2009 and 2010, these groupings will be comprised of oysters pooled from the individual lines. After 2010, the brood stock will come from the actual super lines that were spawned in 2008. See Figure 8 next page:

Table 5: *Composite lines available for distribution in 2008 and 2009, the site of their selection with either high (green) – or low (blue) disease pressure, and attributes.*

Line	Selection Site	Attributes	Comments
DBY-H	York River & Lynnhaven River	Disease tolerance • High for MSX • Moderate for Dermo	General all-purpose line across a range of salinities
CROSBreed-H (XB)	York River & Lynnhaven River	Disease tolerance • High for MSX • Moderate for Dermo	Seems to favor higher salinities
Hana	York River & Lynnhaven River	Disease tolerance • Moderate for MSX • High for Dermo • Fast growth	Derived from several imports of Louisiana wild oysters
DBY-L	York first, then two generations in Kinsale	Disease tolerance • High for MSX • Moderate for Dermo	Recently selected for only low salinity
CROSBreed-L (XB)	NJ first, then York, then two generations in Kinsale	Disease tolerance • High for MSX • Moderate for Dermo	Recently selected for only low salinity
Lola	Kinsale	Disease tolerance • Low-moderate for MSX • High for Dermo • Fast growth	After two generations of MSX pressure, selected in low salinity for growth

Figure 8: *Schematic of brood stock composition for distribution to industry. Example above is for the DBY base population. A number of lines derived from DBY (DBY, DBLA, DXB, DMO) were spawned in 2008 to form the new DBY super line. Genetically, this spawn is comprised of parts of all these lines. The remaining oysters in these lines were combined into a "virtual" super line and, in 2008 and 2009, will be distributed as a composite population.*



Our recommendations for brood stock follow salinity zones. For areas where MSX is a constant or even episodic problem, we recommend using those lines that are highly resistant. Both XB and DB seem to do well on the eastern shore, seaside. DB is a good "all-purpose" line and the ones now being selected in low salinity are –at least at present – virtually the same as those being selected in high salinity – therefore interchangeable as brood stock. There are a few areas where only Dermo is a problem or an episodic problem, i.e., without MSX. Here, the Hana line is recommended as it has innate Dermo resistance from its Louisiana origin, but has also been exposed to MSX for long enough to have gained some resistance. The Lola line is appropriate for areas with low or no disease pressure. The XB line being selected in low salinity is still under development, but for now could be used interchangeably with the XB line being selected in higher salinities.

Triploids

Triploids are produced by crossing diploid and tetraploids. The general recommendations for diploids also apply to the production of triploids, that is, it depends on your salinity. The big difference is the tetraploid. At present, we have only one line of tetraploid oyster, one produced by hybridizing XB with DBY – "4DXB." Therefore, all tetraploids used for crosses are disease resistant and therefore, triploids made from these disease resistant tetraploids are also disease resistant. This applies even if the diploid was a wild oyster. Therefore, there are different qualities in these various triploids. The table 6 (next page) illustrates this concept.

Table 6: *Relative disease resistance of triploid resulting from different combinations of DR lines and wild oysters. 4DXB represents our only tetraploid line to date. Other DR tetraploid lines are under development. Diploid lines refer to those listed above. We have data verifying the relative disease resistance of the triploid crosses from 4DXB and the relative disease resistance of these three crosses is indicated.*

Tetraploid	Diploid	Relative disease resistance	Comments
4DXB	XB- or DB-H	+++++	Best combination
	Hana, Lola	++++	Virtually the same as above
	wild	+++	Good, but DR x DR crosses seem better
Wild	XB- or DB-H	++	Not possible, no wild tetraploids
	Hana, Lola	+	ditto
	wild	none	ditto

In conclusion, our testing sites were chosen to represent major different growing conditions in the Virginia, and selection occurs here. But the range of conditions from place to place and year to year is much greater than this, and so ultimately we recommend trying two or more combinations to get experience with these lines under your conditions.

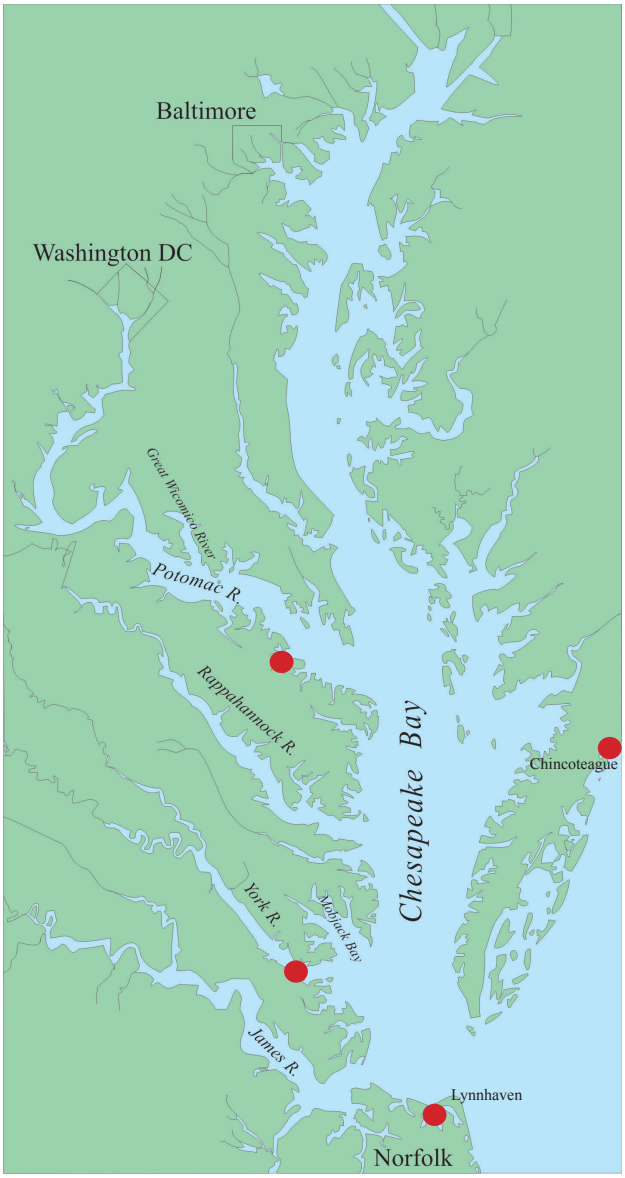


Figure 9: *ABC test sites (●) in the Virginia portion of Chesapeake Bay, ranging from law salinity (near Potomac) to high (Chincoteague). In 2009, testing will extend to Maryland and North Carlina sites.*