1-1-2000

On defining the "edge" of a seagrass bed

R. Virnstein

W. M. Avery

J.O. R. Johansson

ON DEFINING THE "EDGE" OF A SEAGRASS BED

R. Virnstein, W. Avery, J.O.R. Johansson

Need for a definition of the "edge" of a seagrass bed:

The edge is the basis for:

1. Total acreage of seagrass.
2. Change detection, both by ground-based transects and mapping from aerial photos.
3. Seagrass restoration targets; assessments of progress may be based on a comparison of the deep edge of grass beds to the target depth.

Two guidelines emerge for determining the edge:

1. Determining the edge should be definable and repeatable.
2. An operational definition is OK (as opposed to an absolute or ecological definition).

The edge definition ideally should be the same whether determined: (a) from swimming in the water, or, assuming good water clarity; (b) as seen from a boat, or; (c) from a plane — by aerial photos. The edge definition should also correspond to edges of target coverages.

Even though very sparse grass may indicate that grass can grow in that area, three principles suggest that areas of very sparse grass can be excluded from the operational definition of a bed:

1. Very sparse grass probably offers little habitat and ecological value. (But it sure would be valuable to have hard data.)
2. Very sparse grass doesn't fit the image of a "bed." We ought to be able to convince others that density is sufficient to call it a "bed." Eventually, we should have some photos to illustrate edges, both where beds become patchy and where they become sparse.

3. Unless we keep track of individual patches, change detection is difficult in very sparse grass.

In order to include areas (a) that meet the definition of a "bed" and (b) that include areas with some grass but not enough to be classified as a "bed" (many biologists can't stand to categorize an area with even a small amount of grass as zero), two categories of "edge" are suggested:

1. **Bed:** The edge of a definite bed, about >10% visual cover that is mapable. This category of "bed" would include what most of us think of as a bed that has enough grass to provide a reasonable level of ecological value. Perhaps it would usually be easy to recognize, if not at a single point along a line transect, but rather as part of a smoothed contour, perhaps looking 10 m or so to the side of a line transect and 10–30 m past this point. Yes, this category would exclude very sparse grass or patches scattered here and there (thus category #2).

2. **Zones of seagrass occurrence:** The zones of wherever some seagrass is present (perhaps down to some limit of 1 shoot per m^2 for at least 10 m, or something like that). This edge would be fuzzy and more difficult to quantify, but at least it would give some idea of the zone in which some seagrass is present. We might think that is important in trying to predict and understand bed expansion or contraction. A little bit could expand into a denser bed the next year. At least we would know then that it did not come from zero. Conversely, it may indicate the last remains of a declining bed that next year might disappear completely.

Thus the two definitions of edge:

"Bed" = ≥10%, visual estimate, within 10–30 m along transect line.

"Zones of seagrass occurrence" = <"bed" but >1 shoot m^2 for at least 10 m. There may be a second zone of widely-spaced patches (but a lower limit would still be needed).

(RV) St. Johns River Water Management District, PO Box 1429, Palatka, FL 32178; (WA, RJ) City of Tampa Bay Study Group, 2700 Maritime Blvd., Tampa, FL 33605