

## Chapter 4 Say it in Print

- Characteristics of the medium
- The IEP factor in print
- Scientific reports
- Informal reports
- Newsletters
- Brochures
- Flyers
- Fact sheets and backgrounders

### Characteristics of the medium

Printed materials include written reports, newsletters, brochures—generally all written materials published by a watershed group. Exhibit materials, overheads, and other presentation materials may also include written information, and are covered in Chapters 5 and 6. Press releases and media materials, which are subject to outside control, are discussed in Chapter 7.

This section looks at ways to produce formal and informal reports that are lively as well as informative, and explores use of data in other printed materials such as newsletters, brochures, and flyers.

There is such a variety of printed materials that it's difficult to specify how each is compatible with data and story telling, but some general points are worth remembering. Printed materials allow for skimming, in-depth scrutiny, and follow-up reviews at the reader's leisure. Reader interest, more than time, money, or any other factor, is probably the "limiting factor" with respect to length. As long as the reader is kept engaged, a piece can grow as large as is necessary to adequately describe the survey, its findings, and recommendations.

The print medium is a rigid format, in the sense that once it's on the page, it doesn't change to suit the moment or the audience. To reach diverse audiences it may be necessary to compromise with a one-size-fits-all piece, or to make multiple versions of the piece. Further, it's a one-way communication medium. Immediate reader reaction is unknown, there is no discussion of your findings, and no agreement to proceed with recommendations.

### **The IEP factor in print**

With the above-mentioned characteristics in mind, you can produce well-written documents that accomplish or advance many—but probably not all—of your data presentation goals. Highlight results with easy-to-digest data summaries that *inform* readers of conditions. Add explanatory narrative and diagrams that *educate* on watershed ecology or how pollution gets from source A to pond B. By including compelling arguments, revealing photographs, and convincing conclusions, *persuade* readers to take particular actions.

Two-way communication is usually needed to convince an audience: it's risky to trust such a big job to a printed solicitation, no matter how well crafted. If persuasion is a goal of printed materials, use them to make your convincing arguments. But also plan to use other forms of communication that involve some direct contact.

### **Scientific reports**

The most formal and exacting means of communicating data, the written report is highly recommended as the cornerstone of a data presentation strategy. The report is a comprehensive documentation of a watershed survey and monitoring results. It provides a written record for people who have questions about any aspect of the survey.

Depending on your target audience, you may want to produce a scientific manuscript, or a less formal report—or both. Professionals and scientists traditionally present data in scientific reports. They follow a fairly standard and rigorous format that provides documentation of the study question, methods, results, findings, and conclusions. The assumption is that with all this information, knowledgeable readers (i.e., scientific peers) can judge for themselves if the study was conducted according to appropriate scientific methods, if the results are trustworthy, and the conclusions reasonable. To meet this verification objective, scientific reports are typically written in a different style than less formal pieces.

For detailed guidance on writing scientific reports, see the Long Island Sound Task Force's *Data to Action Handbook*, listed in the Reference section.

#### **Format**

A formal report contains several sections, in the following order: abstract, introduction, methods, results, and conclusions. Appendices and reference sections may contain raw data or other pertinent information. On the opposite page are some noteworthy points for the different sections:



**Writing tips**

- Keep your style simple and straightforward.
- Discuss a single topic per paragraph.
- Use simple forms of expression instead of technical jargon.
- Describe results in the text as well as in tables or graphs.

Keep in mind these three audience characteristics when writing a scientific report; the audience is:

1. **Knowledgeable:** the primary audience is probably a scientist or government official, someone who will have some familiarity with the science behind the issue. There's less of a need to explain, for instance, how nutrient loading can disrupt an aquatic system.
2. **Neutral:** conclusions and recommendations should be conservative and cautious. Readers should be informed, not antagonized. An *organization* may take aggressive positions on water quality issues, but the *monitoring program* should maintain a reputation for integrity and objectivity. Reports should be thoroughly edited for inappropriate rhetoric.
3. **Busy:** even knowledgeable readers who know what they're looking for don't like to wade through long lists of numbers for the important points. Graphs and statistical summaries should represent the data. Raw data should be included in the appendices, if space allows.

**Example of Language to Use in Scientific Reports***Recommended:*

"The data *appear* to indicate elevated nutrient levels."

"Nutrients *may* be coming from..."

"Coincident algae blooms suggest possible connection."

*Not Recommended:*

"The farm is choking the waterway with excessive nutrients."

"Farm runoff is clearly causing algae blooms."

"Farm X is polluting the river."

**Ways to Show Data**

Text and figures should be complementary. It should not be left to the reader to notice trends or outliers in a graph.

Use the narrative to point out things you want the reader to notice. Graphs should include simple captions, pointing out important results.

Example 4-1: A page from *Lake Attitash Association 1994 Report*.

The narrative discusses the results rather than just listing them

Adding this caption would help the reader: "1994 Lake Transparency is considerably lower than in 1977, especially in the summer months."

A great deal of raw data, such as years of Secchi readings, should be summarized in a graph in the Results section with the actual data listed in an appendix for those who are interested.

**Data Strategy:**

The Abstract section precedes everything else; people are likely to read it, if nothing else, because it's short. Here's a crucial place to put your message. If you have identified a pollution source, be sure to say so in the abstract.

**Informal reports**

Informal reports are for more general consumption, usually with more pictures, photographs, maps, sidebars, and colors than scientific reports. An informal report reads more like a story, with a brief premise followed by results and conclusions. Methods should be mentioned briefly, and perhaps placed in the appendix. Emphasize the people who participated; recognize them as volunteers and include their names. If there are a lot of them, mention them in an acknowledgment section or in an appendix.

**Format**

The sections of an informal report may not be as distinct as in a formal report, but should include at least an introduction where the project background is established and the study question posed. A study description should follow, with maps and photographs of sampling sites as well as photos of samplers and analysts at work. Results and discussion can be combined. In this section, concentrate on one or a few salient points, such as "dissolved oxygen levels were adequate at all sites" or "total phosphorus was high in Green Cove and reached eutrophied (super-enriched) status in the summer." Avoid tables filled with numbers; rather, show your results with a few simple charts. Liberal use of photographs will make the document more interesting.

**Tip**

Emulate this technique used by newspapers and magazines: copy a particularly interesting segment of your text to a sidebar. Some people will only read those, so important results or recommendations belong there.

The conclusion should answer the study question posed in the introduction, or it should explain whether additional study is required to answer it. This is a good place to appeal for the reader's help, for example: "We found that boaters help prevent the spread of invasive plants when they clean their boats each time they pull out of the lake."

**Tip**

Instead of a detailed methods section, use several photographs of samplers and analysts at work, with descriptive captions.

**Audience**

Informal reports are designed for those who typically do not read scientific reports. A brief report may be suitable for a town's Conservation Commission, for example—people who want the information, but might prefer it distilled. A brief report may be suitable for technical people who require minimal details.

This is the appropriate type of report to send to watershed organization members and to the volunteers who participated in the study.

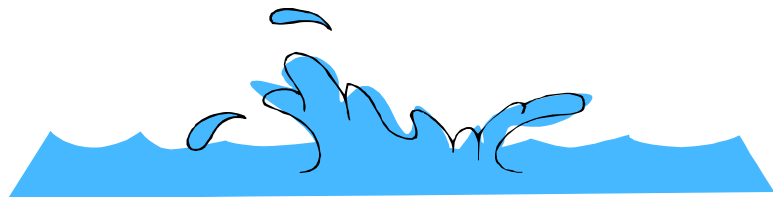
An informal report may also be used as a background paper from which you can easily develop a press release, a newspaper article, a report for a World Wide Web site, or material for other publications.

**Ways to Show Data**

The informal report should be kept short and to the point. It can be extracted from a scientific report, if one exists. In addition to jazzing up the technical report, shorten it in the following ways:

- Drop the abstract.
- Condense the methods section, stick it in the appendix, or use action-shot illustrations with captions.
- If possible, cull the list of sites or parameters sampled, or summarize the data and use indices.
- Include graphics of only the most important findings.

An index is a single number that compiles results from several parameters. A "grade" or a description such as "good, fair, or poor" is much easier to understand than scores of numbers or even graphs. It also makes comparisons between sites or years a lot simpler. See the following example from the Lower Colorado River Authority. Indices should be offered with discussion about what the number says—and doesn't say—about watershed health, and why.

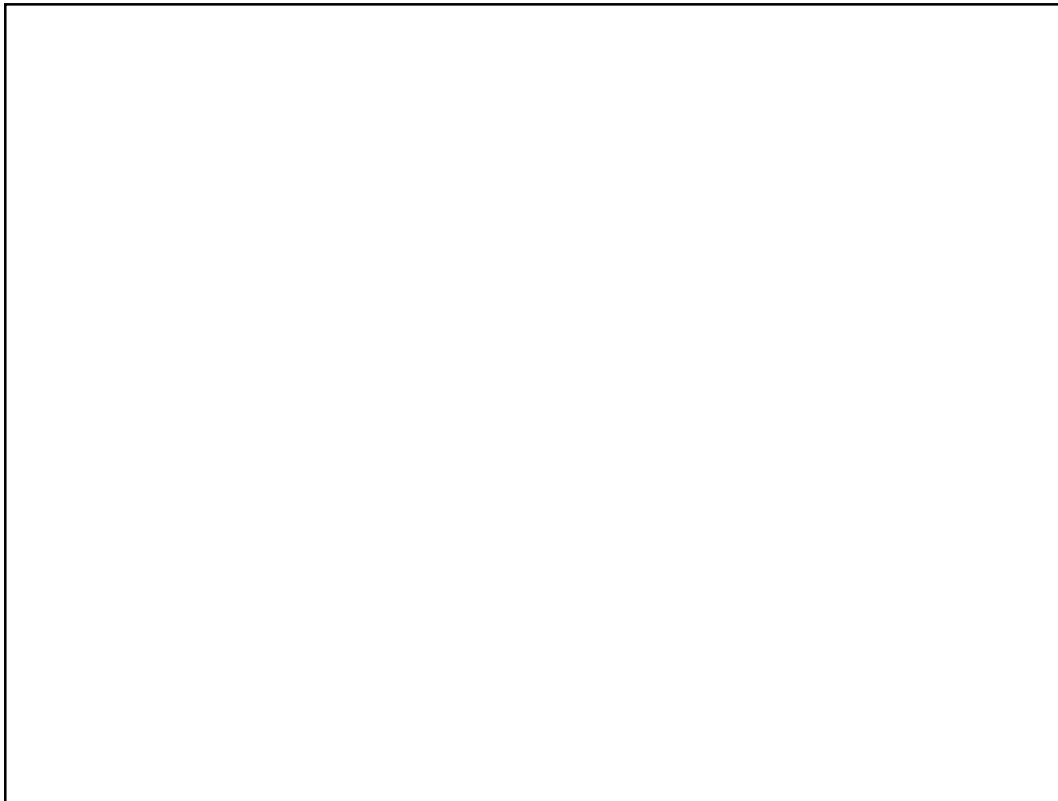


**Example 4-2: Use of an index in the Lower Colorado River Authority's informal report.**

Here is where the index or score appears



Be sure to include a legend to the index



Example 4-3: The Lower Colorado River Authority highlights findings with a sidebar.

**Newsletters**

A newsletter is a group’s way of keeping up with the watershed family. It may contain reports on activities, political alerts, educational material (information on wild-life, for example), profiles of new volunteers, names of officers, and announcements of upcoming events. It’s partly social communication, but it’s also an excellent education tool. You can discuss your results with an audience that is likely interested, and thus willing to read and learn about the issues.

From time to time, add a separate article describing a particular parameter or issue, such as bugs or fertilizers. Get these ready-written articles (with permission) from:  
*The Volunteer Monitor*,  
MassWWP fact sheets, or  
state agencies.

If the newsletter is to be an important vehicle for communicating study results, the audience has to *see* the message. The “to read or not to read” question for a newsletter is often decided while the potential reader is standing over the recycle basket, leafing through a pile of junk mail. To make the reader open the newsletter, put an attention-grabber on page 1: a volunteer at work, or a graph of sampling results, with an enticing headline, such as “Bacteria levels exceed safe limits: do you know where your kids are swimming?” or “When it rains, it’s poor.”

There is much less room in a newsletter than in a report, so use concise headlines and brief conclusions. Skip the methods and simplify graphics, such as maps, so they can be reduced in size.

Often newsletters tend to be self-congratulating, with more soft news than hard news. Use your data to make the newsletter a page turner. Break the news about pollution problems. Are things better or worse than last month, last year? Unless the local newspaper reprints your data, it is unlikely that readers will have seen monitoring results. Consequently, *you* have the scoop—and editorial control.

### Format

Present results and graphs in a style that is compatible with the publication cycle. If the newsletter is published monthly, show seasonal results, with minimal explanation. At the end of the sampling season, follow the results with interpretation and discussion of the data. Include the reactions of various townspeople and agencies, and the actions that were taken because of the findings. If the newsletter is published only annually or biannually, then show a whole season's results with a discussion of recommendations and plans for the next season.

### Tips for newsletters

- Keep the design simple and consistent.
- Use an informal writing style.
- If you use technical terms or information, explain them in plain language.
- Keep articles short and to the point.
- Include graphics, photos, and other visual interest, not just text. But don't clutter the design with distractions such as wild fonts and borders.
- Use 10-point or larger font size for the body text.
- Include the date of publication and contact information.

Newsletters are usually short, so keep articles to a reasonable length. Unless you're doing a special data issue (which is a good idea, once a year), keep the data presentation article to no longer than one-quarter of the whole newsletter. Keep the introduction brief, skip the methods discussion, use a photo or two, and try to focus the results discussion on the most critical parameters and study questions.

Newsletters are great education tools. Accompany your photos and graphs with narrative text that provides some background watershed ecology in each issue. Over time, this builds your members' scientific expertise.

### Audience

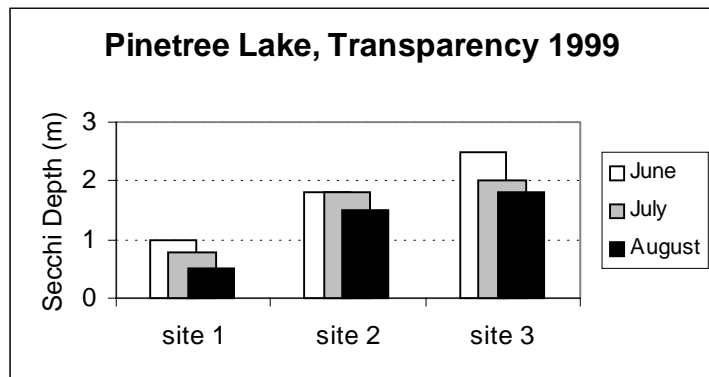
Newsletters generally go to two categories of readers. Organization members and volunteers receive them, and complimentary copies may be sent to people your organization is interested in working with, such as environmental agency staffers, municipal officials, local businesses, and other nonprofits. Readers vary in their educational and technical backgrounds, but generally they are interested in water quality issues.

Newsletters can also be distributed at events, such as lectures or conferences, and provided as background information about the organization. These audiences may

have less interest in the information than the membership does, and are more amenable to a presentation style similar to that of news media stories.

#### Ways to show data

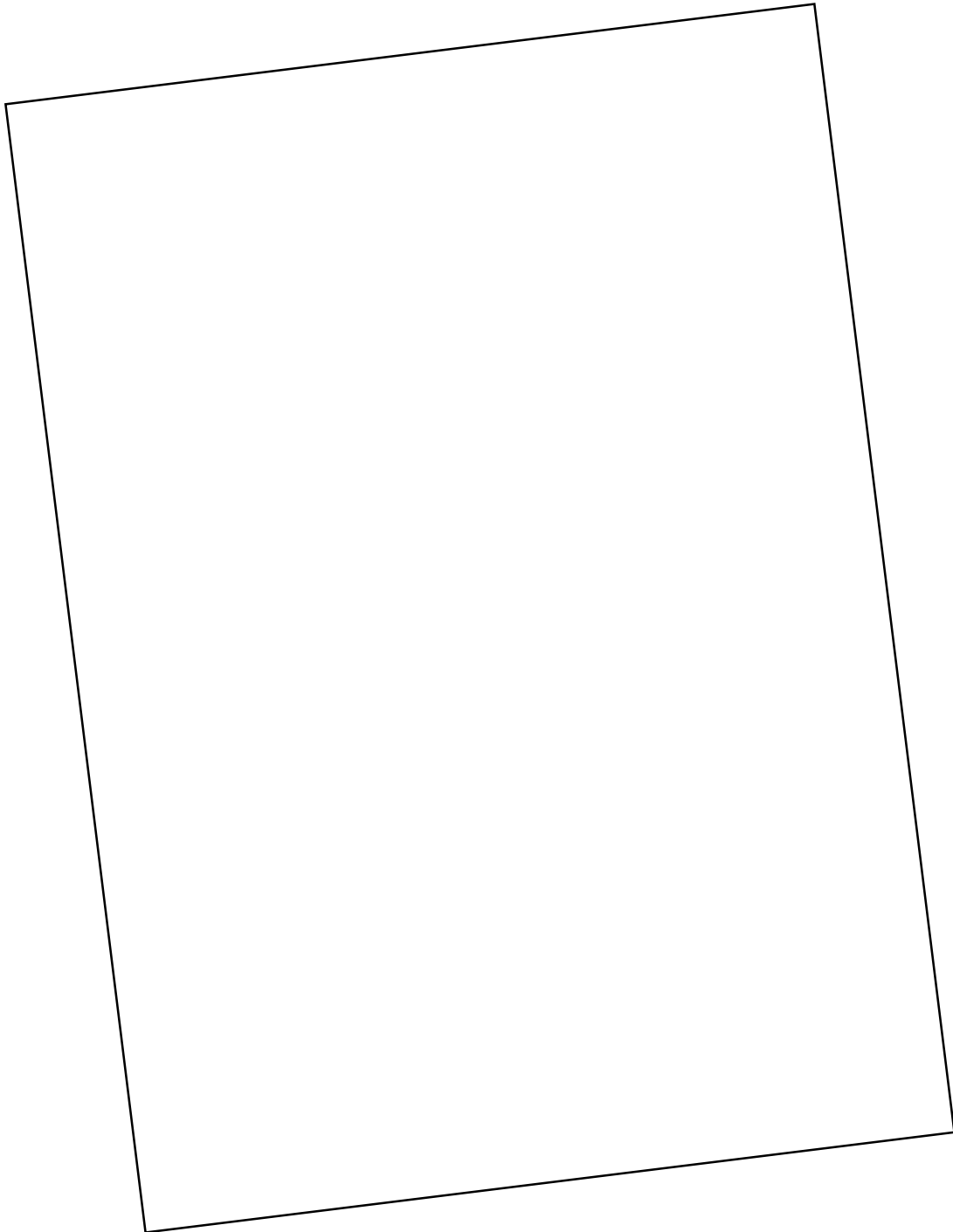
One strategy is to tell readers an unfolding story, by printing results as the sampling season goes along. Help the reader refer back to previous results via narrative references or by extending the data charts, as shown in Example 4-4. This is particularly useful if you print a newsletter monthly, and include sampling season updates with each issue.



**Example 4-4: While showing the latest results at the forefront, this graph reminds the reader of previous data.**

On the next page is an example of a one-page, two-sided newsletter produced by Peg Fletcher of the Lake Mishnock Watershed Watch Program in West Greenwich, RI. This newsletter is fairly simple and inexpensive to produce but contains interesting and informative material, including data on transparency and chlorophyll levels for Lake Mishnock for 1995. Graphs are easy to understand and are accompanied by text description. Other material includes information on freshwater jellyfish, zebra mussels, a thank-you to supporters, contact information, and an announcement about a new volunteer monitor.

This example shows effective presentation of data in a simply designed newsletter.



**Example 4-5: A newsletter produced by one person with average computer skills.**

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## Brochures

### Tips for brochures

- The brochure should have a unified appearance, from front panel to complete foldout.
- Avoid technical terms—use plain language for the broadest possible audience.
- Drawings, photos, and other graphics should have as much weight as text.
- Use 10-point or larger font size for the body text. If you're squeezed for space, say less.
- Use large, bold headlines and titles. Make titles brief and keep them clearly related to the brochure's theme.
- Include contact information for your group. You can make one panel a mail-in membership form if applicable.

A brochure is usually printed on a single sheet of paper folded in half, thirds, fourths, or more. Brochures can be slick (and expensive) or simple (and inexpensive)—in either case, they can be a useful way to get your message out.

Brochures are printed infrequently—typically not more than once a year. The brochure's purpose is usually to get people to join your organization or to contact you to learn more about an issue. When brochures include data, they should concentrate on long term trends, or overall characterization of the water body. Brochures can also illustrate the group's activities.

### Format

The brochure emphasizes the organization's mission and activities. When using data in a brochure:

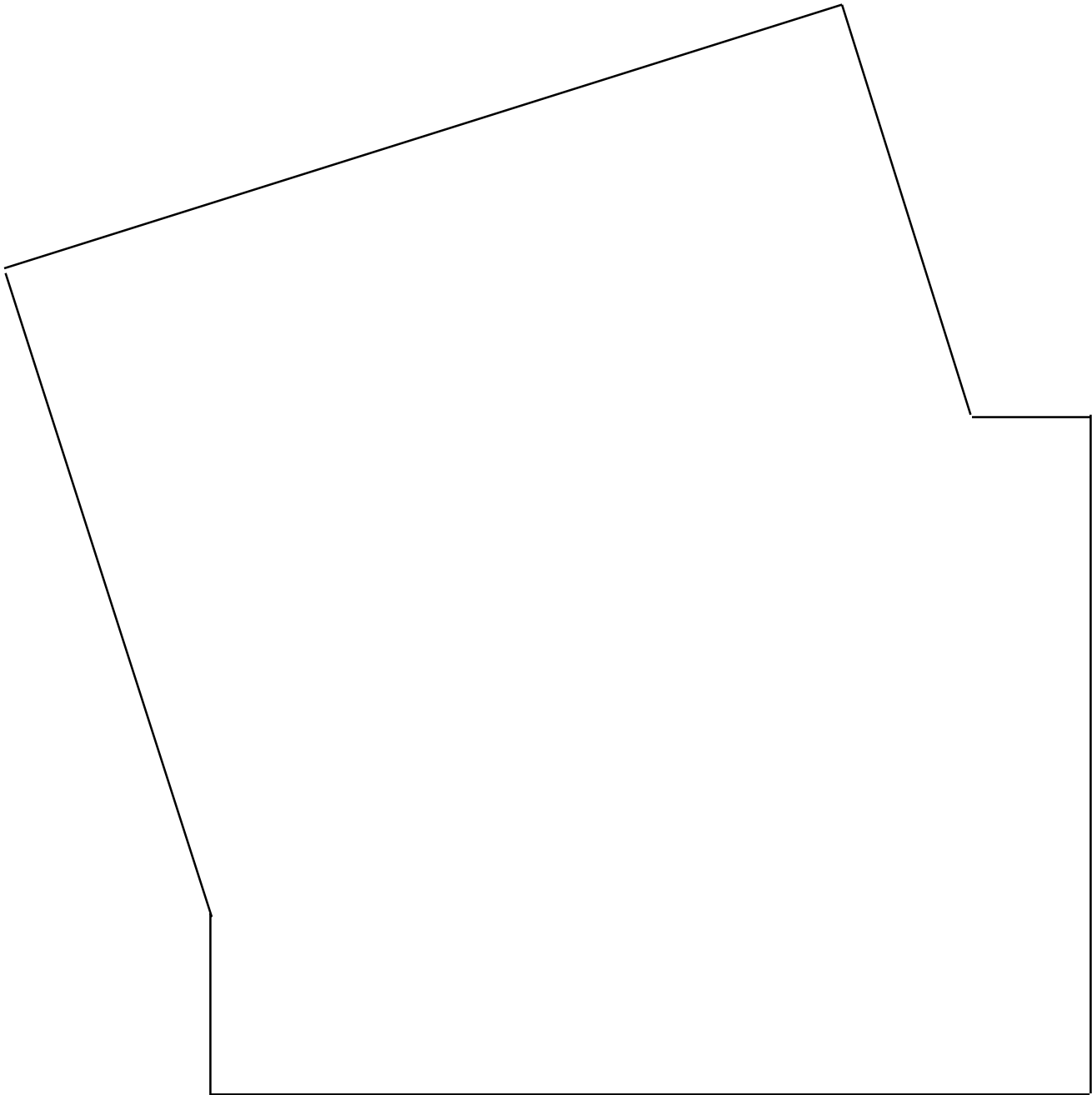
- Skip all methods sections.
- It's OK to imply, but keep your integrity: "increased development has contributed to a great increase in weeds in the lake."
- Show *your* organization's role in the action that followed the study.
- Cover these elements:
  1. Findings
  2. Consequences for water quality
  3. Actions taken by the organization
  4. Actions you expect from readers.

### Brochure design

Brochure design objectives are similar to those of a newsletter—to get people to open the fold, turn the page, and read on. Photos, art, graphs, and maps should be placed with that in mind. Think about how the reader will proceed through the brochure: first, the front and back panel; then, the first foldout (two or more panels in view); and finally, the last foldout (the full surface). The front and back panels should catch the eye, and induce further reading. Each foldout should contain some compelling information, and invite the reader to continue on. The design appearance should be consistent through all panels.

Example 4-6 shows a brochure of the Stony Brook Millstone Watershed Association in New Jersey. It's a three-fold design, which means there are six panels to work with. Note also the use of a water quality index.

Example 4-6: A three-fold brochure with fold-out panels.



### Audience

A brochure, unlike a newsletter, isn't preaching to the choir. A brochure is intended to raise a choir. A more general audience is desired, including people who know nothing about water quality monitoring and who may even be skeptical or hostile to environmental concerns. Therefore, your brochure needs to educate as well as inform, and it works best if it includes common issues that appeal to a wide variety of people.



### Ways to show data

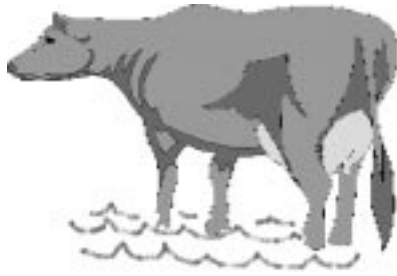
The purpose of a brochure dictates the level of data included. Brochures usually have two goals: to educate and to stimulate action. The former helps an audience to understand the significance of acid rain, nonpoint pollution, or nutrients in water systems. The latter is a more direct appeal to rally support on an issue or get people to join the organization.

If either education or member recruitment are major goals and the water quality situation is not critical, results may not be as important as informing people about the monitoring program. In this case, a graph or even a field sheet that looks authentic and conveys a sense of technical proficiency might be effective. A photo of volunteer monitors in action, looking capable, makes the point that the organization is taking care of business in a credible way. Consider including a list of the parameters measured or the problems studied (e.g., the Echo Lake Monitors are tracking nutrients, bacteria, and erosion that threaten your water supply). Definitive conclusions or recommendations are unnecessary.

If there is a significant water quality problem, then a different approach is warranted. Results take center stage, along with alerts on associated impacts to health, recreation, and the economy.

In either case, space is at a premium in brochures, and visuals are paramount. Tell the story in headlines and eye-catching photos, maps, and graphics. Include only summary information; report *average* values comparing wet and dry weather, or upstream and downstream sites over the full season. Alternatively, state the number of times limits were exceeded (e.g., water was not safe for swimming on 8 out of 11 test dates).

Brochures are printed infrequently, so plan to avoid obsolescence. Don't report a coliform problem if the treatment plant coming on line next month is expected to resolve the problem—unless your point is that your monitoring program was the driving force behind the upgrade.



Here is one way you might create a brochure, using our favorite example. You can put these ideas together in a sample brochure, which conveys the four major information points mentioned above (the results, the consequences, what you're doing, what the reader can do):

- Put a photo of cows standing in a stream on the front cover.
- Add a teaser caption to get readers to continue ("There goes the neighborhood" or "Look who's taking over the swimming hole...")
- Show the map (yes, you must have a map in a brochure) in the inside fold. The map should show the area of interest both to your organization and to the reader.
- Add a sentence or two about the connection between cows and coliform.
- Then suggest impacts: perhaps another picture of kids swimming or fishing, with a caption on the associated health risks.
- The map might stress this point by showing the location of cow pastures, swimming holes, and sampling sites.
- On the next panel, or below the picture of the kids, provide a bulleted list of things your group is doing (sampling, working with farmers to fence off cows, and so on).
- Finish with a brief wrap-up discussion (bullet lists are good here too) of what can be done to improve the situation. Add a sign-up form or number to call.

## **Flyers**

Flyers are single sheets of paper, letter or legal sized, that get posted on bulletin boards or in other public places. They announce events, items for sale, apartments for rent, services, and so on. Flyers might announce a slide show, a river event, or a public meeting to review monitoring results.

### **Format**

The flyer is similar to the brochure in that it has a specific goal: in this case, to get someone to come to an event. It is different in that it is much more short term. A flyer is printed in a couple of hours for a meeting next week or next month.

**Flyer design**

Main information should be in large type, readable at a distance of ten feet. Illustrations and graphics add interest. The reader should get the message at a glance, or in a few seconds of reading at most.

**Audience**

The audience is anyone who passes by the place where your flyer is posted and can read it. These people are also usually doing other things, and aren't likely to stop and read anything lengthy. The message needs to be kept short, simple, and to the point.

**Ways to show data**

Flyers are the ultimate drive-by data delivery: they are the briefest of all. Make *one* point only, and that is likely to be the conclusion used in other written materials. A simple graph might be appropriate. Suppose your local lake has recently had fish dying because of eutrophication, and your group plans a slide show about the problem at your public library. The flyer can simply pose a question or suggest a link, as shown in Example 4-7.

**Fact sheets and backgrounders**

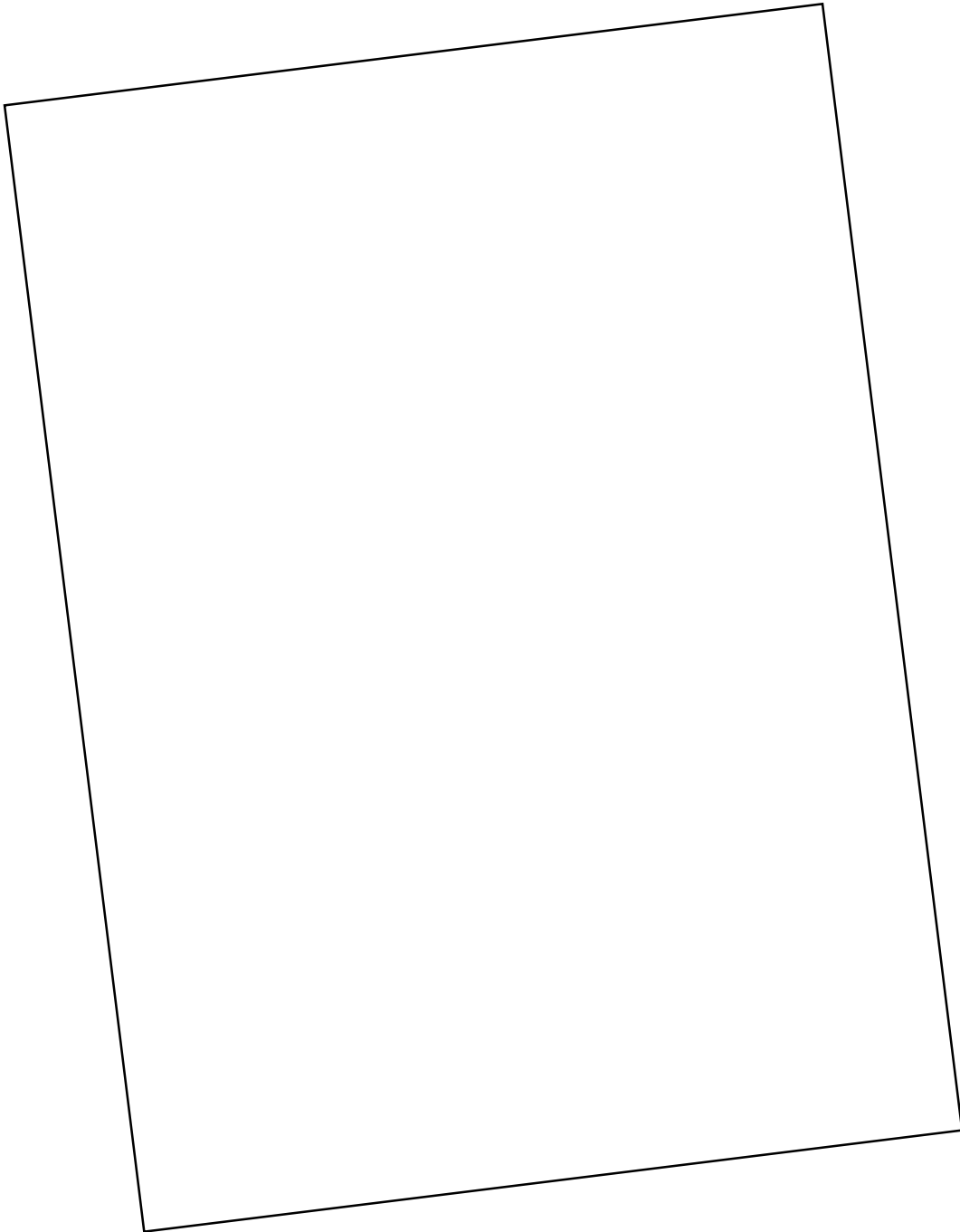
Fact sheets and backgrounders are printed information intended to complement data presented at other venues: at exhibits and displays so passersby can take them; at live presentations to be passed out to the audience for further information; or as part of a press kit.

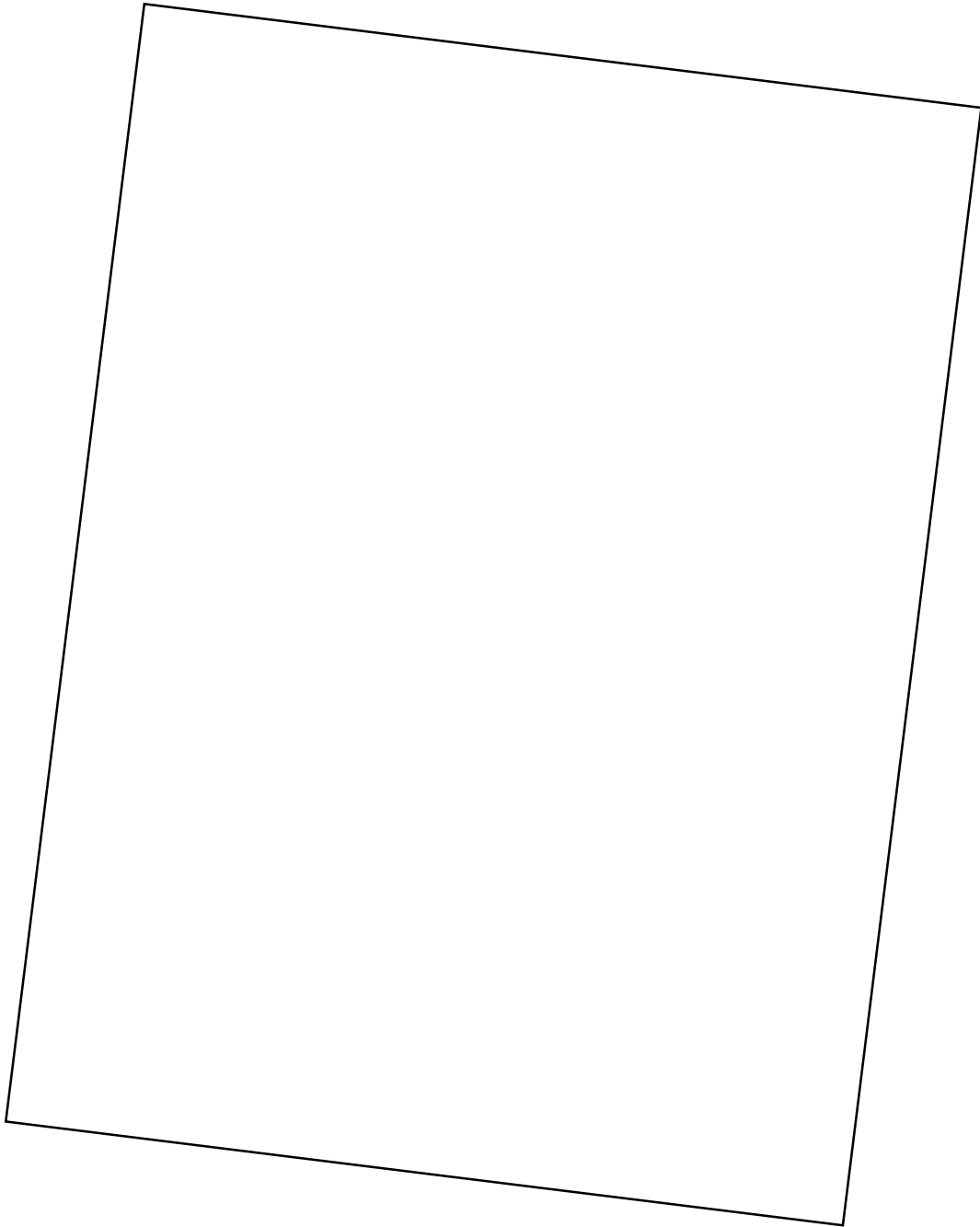
The fact sheet is a one-pager, designed to provide factual information in a simple format: statistics on your watershed or water body for example, data that may not be included in an exhibit or in a short talk. They are an excellent medium for results: they can be updated easily, photocopied or reprinted quickly, and slipped into a brochure or newsletter.

Backgrounders are similar to fact sheets, but instead of statistics or specific study data, they provide background information needed to better understand the data. For example, backgrounders could be prepared for each of the parameters measured: one for pH, one for dissolved oxygen, one for invasive plant species, etc. They can explain what exactly the measurement means, where the pollution might come from, what typical values are, and possibly some remediation steps to correct a problem.

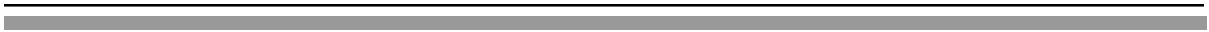
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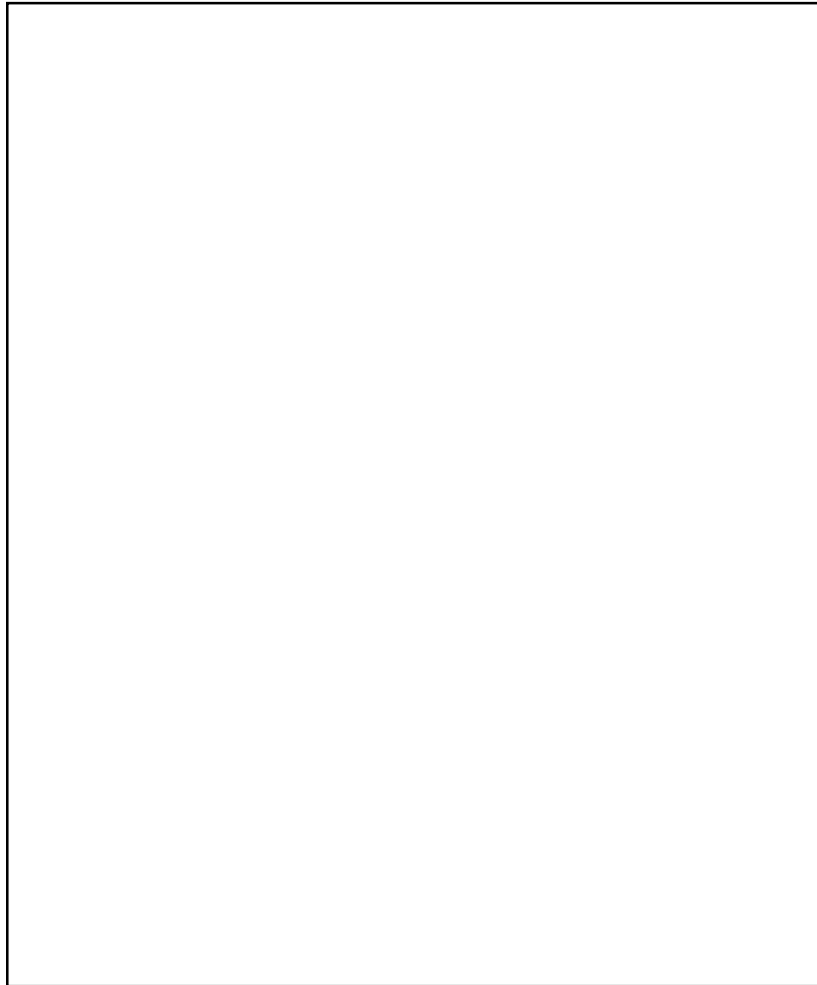
**Example 4-7: Sample flyer announcing a slide show with data included in a small comparison bar graph.**





**Example 4-8: A fact sheet for the Deerfield River Watershed, prepared by the Massachusetts Executive Office of Environmental Affairs.**





**Example 4-9: A backgrounder on nutrients, from the *Workshop Tool Kit*.**

**In conclusion** Printed materials provide a wide range of opportunities for reaching technical or lay audiences, and for presenting quick highlights or in-depth coverage of surveys and results. The relative ease with which words, numbers, and images can be intermixed makes print a powerful and flexible means of connecting in different ways with your audiences.

Print is hard copy: people can hold it in their hands and refer to it again and again. This makes it imperative that the information is accurate. The numbers *and* your interpretation of the numbers must be precise and correct. Off-hand remarks given in a slide show may be entirely inappropriate when recorded in print.

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As you look for ways to tell your story, keep in mind the various characteristics of print. Identify your audiences' IEP needs (inform, educate, and persuade) and consider how a flyer, a brochure, a newsletter, or a report might cover these. Consider the timeliness of the issue and of your results, and how long it might take to design a document, check the facts, refine, print, and distribute it. Select the ones most appropriate for your needs, and get your story down in print.

